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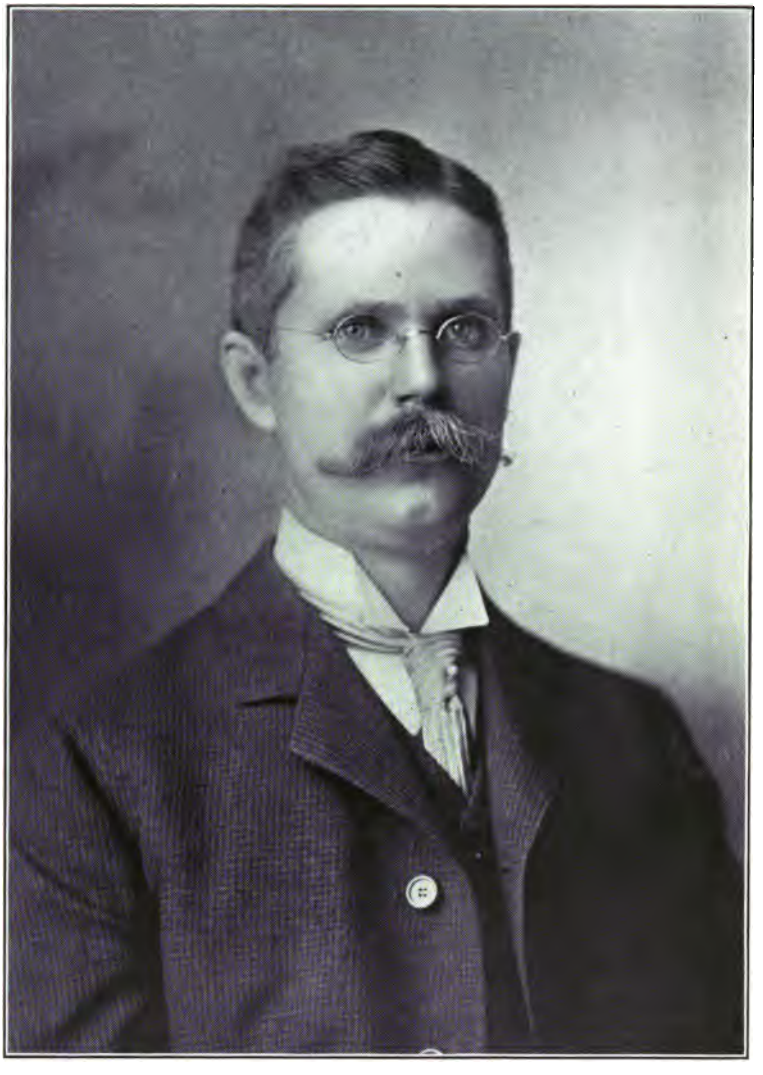
G. C.



EUGENE L. MANN, M. D.
ST. PAUL, MINN.
PRESIDENT 1906-1907

TRANSACTIONS

OF THE

AMERICAN HOMŒOPATHIC OPHTHALMOLOGICAL, OTOLOGICAL AND LARYNGOLOGICAL SOCIETY

TWENTIETH ANNUAL MEETING

JAMESTOWN EXPOSITION, VIRGINIA
JUNE, 1907

BOSTON

CATALOGUED

JUN 1 -1915

J. F B.

OFFICERS OF 1906-'07

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IRVING TOWNSEND, M. D. ..... New York City.

SECOND VICE-PRESIDENT:

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SECRETARY:

H. S. WEAVER, M. D. ..... PHILADELPHIA, PA.

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G. DEWAYNE HALLETT, M. D. ..... NEW YORK CITY.

CENSORS:

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W. H. PHILIPS, M. D. ..... CLEVELAND, OHIO.
EDGAR J. GEORGE, M. D. ..... CHICAGO, ILL.
A. WORRALL PALMER, M. D. ..... NEW YORK CITY.
J. A. CAMPBELL, M. D. ..... ST. LOUIS, MO.

PROCEEDINGS

OF THE

TWENTIETH ANNUAL MEETING

OF THE

American Homœopathic Ophthalmological, Otological, and Laryngological Society

Held at the Jamestown Exposition, Norfolk, Va.
June 18-20, 1907

President Eugene L. Mann called the meetng to order at 2:30 p. m., Tuesday, June 18, 1907, in the Inside Inn.

On motion the program was adopted as printed.

The following committees were appointed:

Committee on Attendance:—H. S. Weaver and Fred. D. Lewis.

Committee on Press:—W. R. King.

Auditing Committee:—R. S. Copeland, A. Worrall Palmer and D. A. MacLachlan.

Committee on President's Address:—C. Gurnee Fellows, Howard P. Bellows, J. A. Campbell.

On motion of Dr. Fellows, Dr. Linnell's discussion of Dr. Hallett's paper was read by title.

SECOND SESSION—TUESDAY EVENING.

Called to order at 8 p. m. in the same place.

Secretary Hoyt read his report, which—on motion—was accepted.

PRESIDENT'S ADDRESS.

EUGENE L. MANN, M. D.,

St. Paul, Minn.

HAVING in a prior address acknowledged our debt to general medicine the obverse of the proposition demands an equal share of attention. What does general medicine owe to the specialties, or what have the specialties accomplished for general medicine? The most obvious sign of our accomplishments in this respect is shown by the number of people wearing glasses with relief to certain symptoms of nerve strain peculiar to the individual and ranging from headaches to the most pronounced cases of nervous and even moral breakdown. A less obvious, but fully as important an accomplishment has been the decrease in the number of cases of catarrhal deafness in its various forms and of purulent middle ear conditions with their accompanying train of serious cerebral and vital symptoms and pathological changes, due to the removal of adenoid growths in children.

Neurasthenia, or "Americanitis," as it has been called, certainly has one of the legs necessary to make its stool stand resting on the specialties, and it is I believe a general rule among those supervising the rest cure for this complaint to first submit the patient to a thoro physical and special examination and to eliminate sources of nerve strain thereby detected.

In the field of diagnosis the debt of general medicine to the specialties is most frequently acknowledged.

I call to witness the examination of the fundus oculi in all cases of brain tumor and in the various forms of Bright's disease; the inspection of the membrana tympani in young babies with fever; the application of the tuning fork hearing tests in cases of projectile vomiting and dizziness; the value of nasal exploration in headaches, and the use of the laryngeal mirror in detecting nerve pressure from aneurism of the aorta or innominate arteries and solidified lung apices.

It has many times been hinted that the specialists have gone crazy

and that each one has attributed all ills of mankind to strain arising from the organs over which he presides as health director; and, in a modified sense, it may be true that we have looked at human ills and troubles too narrowly, thru the medium of the special organs.

An investigator along this line claims that he visited the consulting room of a prominent oculist and in some way unknown projected his sublime self into the personality of the specialist as he opened the door to his reception room. All that he saw was eyes waiting their turn in the consulting room. He then in the same way visited the office of a gynecologist and saw only disembodied uteri sitting in the chairs. Not many years ago it was announced that the cure of asthma lay entirely within the sphere of the rhinologist, and one of our graduates wrote me during the summer following his graduation that he had demonstrated this nasal origin of asthma in a patient, a farmer, suffering with that complaint who, on one of his visits to town, partook too freely of the spirits that cheer and inebriate. On the way home the old family horse, who on these occasions assumed the responsibility for the farmer's safe return, stopped rather suddenly at some obstruction in the road; the farmer went over the dashboard and landed in close proximity to the hind feet of old Faithful, was kicked in the face, and his nose broken; he wrote the young graduate that he has had no asthma since.

But the days of ultra enthusiasm have passed, and instead of attributing all ills to sources of irritation arising in the special organs, the specialist may perhaps be more justly criticized for confining his attention too closely to the eye, ear, throat or uterus, as the case may be, in disregard of the local effects of general constitutional diseases. In all new developments the pendulum of opinion and practice usually swings to the two extremes before reaching its stationary point and developing from that.

The most important service that the specialties have rendered general medicine, in my opinon, has been this assistance in a more accurate interpretation of symptoms. The good old fashioned country practitioner has been described as one to whom everything above the belt was pneumonia, and everything below the belt typhoid fever. The general trend of medical advance has been in determining the cause of disease and symptoms and their more accurate interpretation. In this the specialties have largely assisted. To paraphrase, and also complete:

"A headache on the patient's brow,
A simple headache was enow,
And it was nothing more."

But today a headache leads to careful inquiry into methods of life, into the state of the digestive system, into the various reflexes—an examination of the eyes for abnormalities of vision and of the nose for pressure causes.

So one might enumerate many symptoms whose meaning and causality have been made plain only thru the means of the various specialties; and if we have done nothing more for general medicine than to inaugurate a more careful and accurate study of the reasons for symptoms, we have cause to congratulate ourselves and have earned the gratitude of general medicine and of the general practitioner; for it is only as we accurately and definitely understand the manifestations of disease that we can advance in treatment.

Specialists have also been criticized for relying too much upon local measures to the neglect of constitutional treatment and the indicated remedy. We may perhaps plead guilty to this charge, and yet we believe that this apparent neglect has been more beneficial to the cause of medicine and of homœopathy than appears on the surface. If some miraculous power could endow our remedies with a personality and the power of speech, many if not all of them would I believe at once enter a complaint that they had been many times blamed for not doing things and removing symptoms that they never agreed to—for not performing cures that they never promised to perform.

Belladonna, for example, accused for not curing a throbbing headache situated in the forehead, would plead: "Such headaches I have truly promised to cure, and I will fulfill my promise when they are due to a simple congestion, but in the case against me the headache was caused by an inflamed frontal sinus due to the fact that its ventilating shaft was occluded by an overgrowth of the anterior end of the middle turbinated body—such cases I never promised to cure, and I can't cure; you must not expect it of me, nor blame me for failing. I will serve you truly and faithfully in all things that I have promised in my provings, but don't discredit me because you have failed to understand."

Then pulsatilla or argentum nitricum, accused of not relieving conjunctival inflammation even when characterized by their own peculiar

symptoms, would reply: "When conjunctival inflammation is caused by inflammatory congestion I will cure my own peculiar train of symptoms, but I never promised to cure when the cause was an irritating tear flow due to a nasal duct occluded by tumor formation in the nose; don't ask me to, for I can't; don't blame me for my refusal—I never agreed to do that."

And so one might multiply these cases in which the specialties have shown the reason for the apparent failure of our materia medica to effect a cure of symptoms recorded in the provings, by showing that such symptoms were dependent in the particular case upon far different causes than a study of the pathogenesis of the drug would indicate as within the realm of its influence.

This is of course purely negative testimony, but it is of value in determining the exact sphere of influence of the various drugs.

In a positive way it must not be forgotten that the incentive to a reproving of our materia medica came from this society and in consequence the monumental far reaching work of Dr. Bellows, not only in the reproving of belladonna now in book form (a book that should have its place in the library of every member of this society), but in blazing the way, as it were, and clearing the ground for a systematic reproving of other drugs. We all partake, at least by reflection, in the honors and glory won by Dr. Bellows; if somebody would review the voulmes of our Transactions and edit the materia medica, I think they would be surprised at the amount of material that would be found, which needs only classification and editing to make it valuable. During the last two decades medicine has been passing thru the surgery age and the early bacteria age, and the contributions to general medicine by the specialties have been along surgical lines.

As I spy into the future of medicine I seem to see a therapeutic age near at hand. Surgery, in its marvelous development, has successfully invaded all of the regions of the body that were taught to be impregnable when I studied medicine, and there seems to be little more that she can achieve.

Pathology and bacteriology have been developed until some people fear to breathe or eat, and such impetus has been given to the study of disease causes that preventive medicine is well launched. But in my opinion there is dawning an age of therapetuics, the first faint streaks of light are now discernible at the horizon. The therapeutic age in medicine will be the homœopthic age, and the contributions to general

medicine by the specialties will be along the line of verified provings and definite drug action in the various special regions.

As a closing sentence let me repeat that in my opinion the most valuable contribution that the specialties have made to general medicine lies in the spirit of careful, painstaking analysis of symptoms and causes of disease.

SECRETARY'S REPORT.

Mr. President and Fellow Members:

I herewith present the secretary's report for the year 1906-'07. There are one hundred eighty-five active members on the roll. Although the directory in the Transactions has been frequently revised, many errors have crept in, and this year you will find over fifty corrections, either as to address or the designation of the specialty practiced. It is earnestly requested that any change in a member's address or practice should be sent to the secretary at the earliest opportunity, in order that the list be kept up to date. There was one instance of an address on a street which did not exist in the city named, and the member even lived in another city at the time.

This year has been uneventful, save for the usual routine work of preparing for this meeting. Here it is well to call attention to the fact that the By-Laws state that "the completed paper shall be forwarded by May first." This year only one paper had been received by May sixth, and up to the time of the secretary's leaving for the meeting, several papers had not been seen; consequently the discussers did not have time for proper preparation. Telegrams even, in some cases, brought no answer; this is wrong and very trying to the president and secretary. If the coat fits I hope it is lined with good scratchy hair cloth.

No death has been reported to the secretary and no resignation presented.

The Transactions, in their delayed appearance, need a word. There is no apology, for the delinquents have not alopogized. The matter, of course, was somewhat later than usual, owing to the September meeting last year, but everything was in the printer's hands in time for the book to be out a few days after the May number of the official organ was printed. Letters and telegrams were freely sent, with language strong enough for even the Printer's Devil, and the day I left for this meeting no Transactions had been seen, but they were said to be ready for mailing.

The resolution on the final report of Dr. H. P. Bellows on the drug proving was sent to the various journals, as directed and, so far as I know, was published by them.

The two matters of writing the discussions in place of having a stenographer, and printing abstracts of the papers on the programs did not receive sufficient favor to be carried into execution, at this meeting.

All of which is respectfully submitted,

H. W. HOYT, *Secretary.*

REPORT OF THE TREASURER.

Cash on hand as reported at Atlantic City		$204.10
New members, dues and initiation		100.00
Dues, old members		411.00
Total receipts		$715.10
J. B. Garrison, expenses and stenographer	$27.25	
David W. Wells, Sec., expenses and stenographer..	40.53	
C. S. Brown, use of electric lantern	8.50	
The Examiner, express of Transactions	10.31	
H. S. Weaver, transportation of patient	3.50	
J. B. S. King, official stenographer	100.00	
J. L. Moffat, stenographer	1.50	
H. W. Hoyt, Sec., printing, etc.	20.88	
G. DeWayne Hallett, Treas., printing, stamps, envelopes (out of town checks, $2.70)	34.90	
Total expenditures	$247.37	$247.37
Cash on hand		$467.73

Bills payable, none. Fifty-four members are in arrears. Back dues owing, $287.00.

G. DEWAYNE HALLETT,
Treasurer.

Examined and found correct.

C. GURNEE FELLOWS,
For the Auditing Committee.

REPORT OF COMMITTEE ON DRUG PROVING.

The report on behalf of the Committee on Drug Proving which was rendered last year was presented as a final report. It dealt with the completion of the work undertaken by the Society in the realm of drug proving, and announced the publication of the book which records its results in permanent form.

Other matters have arisen in connection with this work, however, which require a continuation of these annual reports. The disposition which should be made of the original records of this proving, which are still of value for purpose of reference, was considered at the last meeting of our society and determined by vote. I have to report to-night that in accordance with your vote these records have been reduced to the smallest possible compass and so arranged that they may at any time be consulted with perfect ease; also that they have, in this form, been delivered, compactly boxed and properly labeled, to the Secretary of the American Institute for Drug Proving—to be preserved in the archives of that Institution.

The statement of the financial outcome of our publication cannot yet be rendered because the sales have not yet ceased. In accordance with the advice of several members of the society, who were consulted upon this point, the balance of the subscription edition has been placed for sale with Messrs. Boericke & Tafel, who made such especially favorable terms, in consideration of the nature of the book, that they are practically doing their porion of the undertaking at cost price. No report has yet been received from them in regard to sales which they may have effected, and it is an obvious necessity that any formal financial statement must be deferred and be made the subject of another annual report from this committee.

Respectfully submitted,

HOWARD P. BELLOWS.

J. B. Garrison moved, seconded by W. R. King, that one hundred dollars be paid Dr. Bellows to be used by him as his judgment dictates in distributing copies of the book on Belladonna to those who took part in the re-proving.

REPORT OF NOMINATING COMMITTEE; ELECTION OF OFFICERS.

The nominating committee offered the following ticket; upon motion of W. R. King the secretary cast the Society's electoral vote for each as named:

President: DAVID H. WELLS, Boston, Mass.
First Vice President: JOHN L. MOFFAT, Brooklyn, New York.
Second Vice President: ZUBER N. SHORT, Hot Springs, Ark.
Secretary: H. S. WEAVER, Philadelphia, Penn.
Treasurer: G. DEWAYNE HALLETT, New York.

BOARD OF CENSORS.

Wm. B. Hughes, Little Rock, Ark.
W. H. Phillips, Cleveland, O.
Edgar J. George, Chicago, Ill.
A. Worrall Palmer, New York.
J. A. Campbell, St. Louis, Mo.

REPORT OF THE BOARD OF CENSORS.

The following were recommended and duly elected to membership:
J. T. Crebbin, 157 Baronne St., New Orleans.
William McLean, 16 W. 45th St., New York.
Wilber F. Noyes, 24 Warren St., Boston.
Rudolph F. Rabe, 616 Madison Ave., New York.
Walter E. Reilly, Fulton, Mo.
Nicholas Selberg, 629 Grand Ave., York, Neb.

The resignation of George B. Peck, of Providence, R. I., was accepted.

The rest of the evening was taken up by a very enjoyable, informal, conversational smoker.

THIRD SESSION—WEDNESDAY AFTERNOON.

The society reconvened at 2:30 p. m., June 19th. The minutes of the previous business session were read and approved.

On motion of C. Gurnee Fellows it was voted that papers of members not present be read by title until all papers of members present have been read; papers of absent members to be read afterward if deemed advisable.

FOURTH SESSION—WEDNESDAY EVENING.

Dr. Cornelius G. Coakley, of New York, gave a lecture, or talk, showing how by means of skiagraphs the morbid states of the accessory sinuses and antra can be accurately diagnosed.

On motion of Thomas L. Shearer a rising vote of thanks was unanimously tendered Dr. Coakley for his interesting and instructive lecture.

FIFTH SESSION—THURSDAY AFTERNOON.

REPORT OF COMMITTEE ON PRESIDENT'S ADDRESS.

Your committee begs leave to report that they have carefully considered the president's address and are glad to commend it as a fair statement of the relation of our society to the body of general practitioners and of the general practitioner to us.

We recommend a careful perusal of it to our members, when it comes out in printed form.

We also wish to express our high appreciation of the work of the president in the preparation of the program for this year's meeting.

C. GURNEE FELLOWS,
JAMES A. CAMPBELL,
HOWARD P. BELLOWS.

Report accepted.

REPORT OF THE COMMITTEE ON ATTENDANCE.

Your committee finds that the attendance on this annual session was as follows:

Old members	35
New members	6
Registered visitors	7

H. S. WEAVER,
F. D. LEWIS.

On motion of C. Gurnee Fellows it was resolved that the selection of the time and place of next meeting be let in the hands of the executive committee.

On motion adjourned sine die.

PRESIDENT'S LETTER.

Fellow Members:

As I did not know until my return from Europe in September of the high honor you had bestowed upon me, I take this opportunty to express

my profound appreciation. The acceptance of the presidency of this society entails no small responsibility if the previous honorable record of efficiency is to be maintained.

Never before have I understood the full meaning of the annual plea for co-operation. Whatever I may lack in the line of leadership I promise to make good in being your obedient servant. Circumstances, which will be fully explained later, make it seem advisable to defer till January 1st a discussion of the place for next session, but any suggestions relative to the program will be welcome now.

Fraternally,

DAVID W. WELLS

BIOGRAPHICAL SKETCH.

David Washburn Wells was born in West Newton, Mass., July 9. 1862, a direct descendant of Thomas Wells, physician of Colchester, England, who came to Massachusetts in 1635.

After graduating from the high school he went into business, and ten years later took up the study of physiological optics. Recognizing the importance of medical training he entered Boston University Medical School, which graduated him M. D. in 1897, and two years later was appointed to its faculty as lecturer on mental physiology and assistant in ophthalmology.

He is ophthalmic surgeon to the Massachusetts Homœopathic Hospital, having been connected with its out-patient eye clinic since his graduation; oculist to the Newton (Mass.) Hospital; an ex-president of the Boston Homœopathic Medical Society, and was secretary to this, the American Homœopathic Ophthalmological, Otological and Laryngological, society, in 1905 and 1906.

By superintending examinations of the sight and hearing of school children in Wellesley, Hyde Park and Quincy, Dr. Wells was instrumental in securing the enactment of the Massachusetts medical inspection law.

He is a member of the Boston Homœopathic Medical Society—since 1897, the Massachusetts Homœopathic Medical Society and this, O., O. and L. Society,—since '98, of the American Institute of Homœopathy—since '99, and joined the Massachusetts Medical Society in '07.

He is the author of "Psychology Applied to Medicine" (1907) and numerous monographs.

President Wells married in 1884, and has two sons aged, respectively, 18 and 14 years.

SURGICAL CLOSURE OF SEPTAL PERFORATIONS.

BURTON HASELTINE, M. D.,
Chicago, Ill.

I HAVE no desire to magnify the seriousness of a small defect. There are many worse misfortunes than a perforation of the nasal septum, but that it is at least undesirable I think we all admit. All other writers upon this subject seem to agree that a certain number of permanent perforations must result from operations upon the septum. From this opinion I still dissent, basing my dissension upon a record of nearly two hundred operations for septal deformity without a single perforation.

In the exuberance of this boastful spirit I am now going so far as to say that some perforations that have so resulted can be closed by a subsequent plastic operation. For this opinion I find no support in literature, and my own argument dwindles to a meagre report of three cases. Therefore, my report must be considered as preliminary and suggestive rather than as having any positive clinical value.

In my first case I was impelled by a feeling of remorse as much as by a scientific spirit and was goaded by these combined impulses into an undertaking more courageous than discreet. The patient was a man upon whom I had made a Watson-Gleason operation some years before with little result except that I made a hole thru the septum that never closed The opening was far down along the line where my saw had entered, and was about one centimeter in length. After resecting the cartilage I made a flap from above the opening which I slid downward and held in place with dressings and no sutures. This united without trouble, leaving no opening.

My second patient was a young man with an extreme deflection that had been subjected to two operations the exact nature of which I was unable to learn. Whether his perforation had resulted from the wound or from ulceration was uncertain, but he had a hole thru which I passed the end of my index finger including the finger nail. I made a resection of the septal cartilage thru a vertical incision placed well forward in the cutaneous border. Great care was taken to conserve the

blood supply of the front part of the flap both above and below. The dissection was carried entirely around the perforation and the cartilage removed in fragments. The edges of the opening were then pared and it was enlarged by vertical incisions from its top and bottom. It was then closed on the proximal side with sutures, the front part of flap sliding backward and leaving an area to fill by granulation. On the distal side a long vertical cut was made one centimeter back of the perforation, and the intervening portion was slid forward and sutured. We thus had two vertical seams some distance apart and at no place was there a thru and thru opening.

On the fourth day when the septum was entirely uncovered there was complete closure at all points. The fifth day he had an attack of indigestion with vomiting and temperature, and as he complained about the dressings I thought best to leave them out for twenty-four hours. This was a mistake, as traction upon the stitches produced a slight separation in the upper end of the suture, and a tiny opening resulted. I replaced the supports at once and kept them in for three weeks when the septum was firm enough to stand all strain. Nothing remains of the original opening, but high under the nasal bridge is a perforation large enough to admit an ordinary cotton applicator. My third case was one with a smaller perforation in which about the same procedure was adopted with the resection of a much smaller area of cartilage. The result was perfect both in correcting the deviation and in closing the perforation.

In these cases I used fine silk sutures, fearing that catgut would absorb too rapidly since union is rather slow. My dressings were the Bernays-Simpson tampons, which I divided as necessary to give support without much pressure.

The surgeon must be mindful of several peculiar conditions when attempting an operation of this kind: The septum is extremely poor in the connective tissue element which, histologists tell us, is the element especially concerned in all reparative processes. The septal tissues will not fill in one particle of empty space, so that if a small opening exists when the operation is finished a larger one will be present when healing is complete. All attempts to stimulate by irritating, cauterizing, etc., are worse than useless.

The septum is a non-vascular structure and its vitality is low. Its blood supply must be studied and treated with the utmost respect. Its

membranes are non-elastic and will not bear the slightest stretching. They hold stitches poorly and do not bear pressure well. The problem of support thus becomes an important and delicate one. We cannot depend upon sutures alone to hold the membrane margins together. In previously deflected septa there is considerable tendency, even after resection, to revert to the former position and this is sufficient if not counteracted to tear out any sutures.

But in spite of the many technical difficulties I believe these results are sufficient to warrant other attempts in suitable cases.

100 State Street.

SOME REMEDIES FOR THE LARYNGOLOGIST.

THOMAS L. SHEARER, M. B., C. M., EDINBURGH,

Baltimore, Md.

LAST year, at the Atlantic City meeting of our Society, I had the pleasure of describing certain medicines that had been of great service to me in various throat and nose diseases. Shortly after this time, our newly elected president, Dr. Mann, asked me to send in a paper on the same subject for this season's meeting at Jamestown. In a medical career that covers twenty-five years it would be curious if one could not observe some special effects of medicines in certain pathological conditions. I wish, therefore, to draw your attention to a plant which is little known to the profession and which is consequently seldom prescribed.

STILLINGIA.

It is called "The Queen's Delight" or Stillingia Sylvatica. It is named from Dr. Benjamin Stillingfleet, an English botanist of the eighteenth century, author of "Miscellaneous Tracts Relating to Natural History," 1759. The plant belongs to the natural order Euphorbiaceæ. The numerous stems arise from a large woody root, erect on ascending, one to three feet high; herbaceous or slightly woody below; simple, umbellately branched above; smooth, terete, with a milky juice. The leaves, nearly sessile, vary in shape from narrow lanceolate to the broad oval. The seeds are nearly globular, silvery like, roughish, with a well marked caruncle. The plant grows in dry sandy soil in the Southern United States, from Virginia to Florida and westward to Texas. It is an insignificant looking weed like plant, and is not in cultivation in English gardens. The important part is the root (U. S. P.). It is not official in the British or Indian Pharmacopeia.

Stillingia occurs in long cylindrical pieces, from one-third inch to more than an inch thick; wrinkled from drying, of a dirty yellowish-brown color externally, and, when cut across, exhibiting an interior

soft, yellowish, ligneous portion surrounded by a pinkish colored bark. The odor is slight, peculiar and somewhat oleaginous, but in the recent root is said by Dr. Frost to be strong and acrimonious. The taste is bitterish and pungent, leaving an impression of disagreeable acrimony in the mouth and fauces. Nothing certain is known of its composition, but the active principle is said to be volatile, and the root consequently loses much of its activity when kept. Its virtues are imparted both to alcohol and water.

In large doses Stillingia is emetic, cathartic and alterative. Dr. T. Young Symonds, who first introduced it to the notice of the profession, regards it as a valuable alterative in syphilis and the affections where mercury is commonly employed. In America other physicians, like McMechan and Hale, have spoken highly of its effects, and consider its merits in secondary syphilis, scrofula and chronic liver diseases as established.

My own experience has been confined to its action in **hypertrophy of the faucial tonsils.** Some years ago, a girl aged twelve years—whose mother had died of pulmonary tuberculosis—had both faucial tonsils enormously hypertrophied. The enlargement was of the soft variety and was sufficient to compress the uvula between them. The family were opposed to operative interference, and the remedy was given with the simple idea that as stillingia had a special action on the throat, it might also act on the lymphatic tissues. The tincture—made from the fresh root, because of the volatile active principle—was administered in five drop doses in a spoonful of water every night on retiring. This was continued for three weeks; the remedy was suspended for ten days, then given for three weeks and suspended as before. The alternating rest and drug administration was kept up for five months, with the result that the tonsils were as completely reduced as if by operation.

Stillingia does not act well on the hard, fibrous tonsil; and the very little experience I have had with it in adenoid hypertrophy does not, as yet, permit me to decide on its usefulness in these cases. However, as torpor of the lymphatics, with enlarged cervical glands are leading indications for the remedy, one may possibly obtain an action on the adenoid tissues—if a tincture from the fresh root be employed.

The other indications for the remedy are gloomy forebodings—an important symptom. Smarting, dryness and rawness of the fauces; burning in the throat with painful deglutition. Dry, spasmodic cough;

larynx feels constricted; with stinging in fauces and left tonsil inflamed and enlarged. Trachea feels sore when pressed. Hoarseness and the chronic laryngeal diseases of public speakers. Aching pains in the bones of the extremities and back. Syphilis, secondary eruption and the later symptoms. Aggravation is in the afternoon; from damp air and from motion. The symptoms are better in the morning and from fresh, dry air. In many cases, after unusual exertion of the voice and catching cold, a tickling in the larynx results, with loose cough, a sensation of lameness in the cartilages of the larynx and trachea; a bruised, sore feeling in the laryngeal cartilages. Also in laryngitis, especially if syphilitic, with hoarseness and dry, spasmodic cough. Croup, tickling sensation in the trachea toward evening, which causes a dry spasmodic cough. The bone pains are very severe; immense nodes are found on the long bones, especially on those of the lower limbs and on the cranial bones. The patient looks thin and miserable. Headaches, syphilitic, catarrhal and also of mercurial origin. Chronic periosteal rheumatism; scrofulous periostitis. For these conditions stillingia is recommended.

One can see from this rapid resumé of the remedy what great possibilities and spheres of action it may have.

Its chief work seems to be the removal of inflammatory products by the persistent stimulation of the lymphatic vessels; by increasing their power to carry away such products, the affected parts regain their normal vascular and lymphatic circulation. Pain and swelling, therefore, are soon relieved. In some cases of laryngitis, the local soreness is not due so much to the actual visible congestion of the parts as to lymphatic engorgement—a condition producing soreness and tenderness on pressure in any portion of the body. Massage naturally relieves, or at least helps such cases very much.

It may now readily be understood how a remedy like stillingia can reduce a soft tonsil, yet can not affect a tough fibrous one, in which the lymphatics are, to a great extent, obliterated or destroyed. Even after the removal of the tonsils and adenoid growths I would suggest the administration of this remedy to prevent any tendency to recurrence and to benefit the general health.

The provers of stillingia were Hale—in laryngitis; Martin—in bone pains; McMechan, Hale and Martin—in secondary syphilis; Hale—in scrofula. When necessary the remedy can be taken in the 3x dilution—

five drops three times daily—until improvement sets in and then only one dose daily of the 3x dilution or the tincture at bedtime.

STICTA PULMONARIA.

This remedy, known as "Lungwort" lichen, is prepared in the form of a tincture from the fresh lichen grown on the sugar maple. It was introduced by Dr. S. P. Burdick, and was studied by Hale. It has a wonderful action in certain catarrhal conditions of the nose and nasopharynx *when diminished secretion is so pronounced that excessive dryness* of the parts results. Hence it acts best when any or all of the following symptoms are present:

Dull, heavy pressure in the forehead and the root of the nose, increasing each day. Catarrhal headache before discharge sets in. Soreness in the eyeballs—aggravated by motion. Constant desire to blow the nose but no discharge results, on account of the dryness. Excessive and painful dryness of the mucous membrane; secretions dry rapidly, forming scabs difficult to dislodge. Influenza; nose stuffed up, nasal secretion dries up so rapidly that it can not be discharged. Soft palate feels like dried leather, making deglutition painful; irritation in the chest, with oppression in breathing and a dry tickling cough. Dropping of mucus from the posterior nares; throat looks and feels raw. Dryness in the nose at night; seems unable to breathe thru the nose, and sleep is interfered with.

Sticta is best prescribed in the 3x dilution on tablets; two tablets may be taken every one, two or three hours according to the severity of the symptoms. Give only once daily in chronic cases. Many a coryza can be aborted or at least modified by taking sticta when the postnasal dryness—due to congestion—indicates commencing inflammation; head colds nearly all start in that locality.

CHLORIDE OF GOLD AND SODIUM.

In closing this short but practical paper, I desire to mention a method of treating bronchitis which has defied ordinary remedies. It is most applicable to young and middle aged persons (from eighteen to sixty years of age); to cases of pneumonia that have not resolved with crisis

but that go on to suppuration; to bronchitis, with heavy, yellow purulent expectoration. The solutions are made as follows:

℞. Chloride of gold and sodium .....gr. i.
Manganese iodide .....gr. i.
Glycerine ....m. 100
Misce.
℞. Two per cent. solution of carbolic acid in distilled water..ʒi.

Into a sterile hypodermic syringe drop two drops of the gold solution and two drops of the carbolic acid solution; shake well and inject beneath the skin in the deltoid region. This is done once daily, increasing one drop of each solution every two days—until five drops of each solution is reached as a maximum dose. As soon as this is done, the dose is diminished just as it was increased or, if the expectoration is cleared up, is discontinued.

The first effect of the injection is to diminish the cough, produce sleep, and lessen the proportion of the dense purulent sputum to the frothy. It finally relieves all cough and expectoration.

I had one case in which the change was produced in one week; the patient was literally being suffocated from a widely distributed bronchitis affecting both lungs from base to apex. She had been given up to die by the physician who preceded me in the case. This lady was a prominent member of a fashionable church, and the news of her recovery produced a veritable sensation among her friends.

Some years ago the above formulæ were given to me by a medical man who had been visiting Von Bergmann's clinic in Berlin, when I was a student there. I have used the remedy many times since then. The only symptom that calls for either cessation of the injection for a day or two or the diminution of the dose, is a feeling of oppression or slight constriction across the front part of the chest. In such a case, it is advisable to omit the treatment for one day and then give a much smaller dose. Each patient will guide the physician by the effects produced during the first two or three injections. Some people require only the minimum doses during the entire cycle, the improvement from the first smaller doses being so marked as to encourage us to continue that dose and then increase it if the heavy expectoration does not disappear quickly enough.

DISCUSSION.

GEORGE H. QUAY: In this day, characterized by a tendency to ape the other school and laud the virtues of chemical compounds and drugs "made in Germany," it is refreshing to have a paper discussing the old vegetable remedies. About eighteen or twenty years ago I received from the Secretary of the New York State Homœopathic Medical Society some fifteen or more volumes of their old Transactions. These have given me many an hour of solid enjoyment, they are a perfect gold mine of treasure. In those days more attention was paid to materia medica, and I am free to say I believe it accrued to the benefit of the patient. There are provings and clinical experiences derived from the use of many of the old and forgotten remedies that it might be well for us to resurrect. Altho their field of action may not be large yet they will often fill a niche that our newer and more often used remedies will not touch. Two of these are the remedies discussed in this paper, stillingia and sticta.

Dr. Nichols tells us that stillingia "Causes a very marked irritation of the throat, tickling of the fauces with oppression and darting pains thru the chest, cough which was at times very severe, and such catarrhal symptoms as frontal headache, soreness of the larynx. Laryngitis, especially of a syphilitic character, with hoarseness and dry, spasmodic cough, or it may be loose."

I believe certain patent medicines that are used largely in the Southern states for syphilis are composed principally of stillingia and the iodide of potash.

Sticta pulmonaria, commonly called Lungwort, "has been used with benefit in catarrhal affections of the nose and likewise in affections of the lungs; dry or fluent coryza, violent and incessant sneezing, pain in the forehead, sensation of fullness in the forehead, dryness of the air passages, cough with expectoration of mucus and blood." There is also a constant desire to blow the nose but no discharge results, or the nostrils may be dry, scabby and sore.

"THE REMOVAL OF TONSILS FROM THE STANDPOINT OF PREVENTIVE MEDICINE."

H. A. HARRISON, M. D.,

Utica, N. Y.

THIS seems to be pre-eminently the day of preventive medicine; its height is not yet reached, the pendulum still swings on. The faith of each and every community in the efficacy of preventive medicine must be advanced by education; the progressive physician is the greatest factor in this educational campaign.

The universal belief in vaccination as a preventive of smallpox is an illustration of how thoroly the public can be educated to a belief in preventive measures. A hundred years ago Jenner had only just begun to advocate vaccination and now it is all but universally employed.

The treatment of consumption has undergone a great change during the last few years. It is no longer considered an incurable disease. It is recognized by everyone who has made a study of the disease as being a communicable disease which is spread to a great extent by the careless and promiscuous expectorating by consumptives. Intelligent tratement of consumption, including proper food, hygiene and suitable medicine, will in time force recognition that patients can be cured everywhere of consumption, and that while in certain cases it is advisable to send one's consumptive patients to another climate, it is not necessary in the majority of cases in the early stages; in the later stages its mortality is much increased, no matter what treatment is inaugurated. The same methods as cure the disease, viz., proper food, and right living without medicine, will do much to prevent the spread and development of ths dread disease.

The conditions resulting from and accompanying enlarged tonsils require a consideration at our hands. I will not enter into a detailed description of the anatomical relations of the tonsils. An enlarged tonsil is a diseased tonsil. By pressure it interferes with the circulation to the middle and internal ear. By pressure on the Eustachian tube its functions of equalizing the air pressure in the middle ear and draining

the middle ear of mucus are interfered with. Tinnitus often results and also, in case of middle ear diseases with either mucous or mucopurulent discharge, the mastoid is much more likely to become involved or progressive deafness may result without mastoid trouble.

That enlarged tonsils predispose to tonsillitis, diphtheria and other throat diseases in various forms is recognized by all. In some forms of tonsillitis the substance in the crypts forms an excellent culture for the various kinds of bacteria, and in children who have frequent attacks of gastric and intestinal trouble the cause can often be found to be located in the tonsils, and an individual attack explained by the swallowing of a quantity of these bacteria that have been breeding in the tonsil. The extreme vascularity of the tonsils and the ease with which they become infected make them the avenue of entrance whereby the infecting element of many systemic diseases enters the blood. The fact that rheumatism is so prone to accompany or follow tonsillitis has led some to believe that the rheumatic poison reaches the blood thru the tonsils, and is, therefore, a tonsillar disease.

Tuberculosis can be introduced into the system thru the tonsils. Robertson found eight per cent. of tonsils removed to be tubercular. The tubercle bacillus is thought to enter thru the crypts which empty into the supratonsillar fossa and then involve the tonsil. The general infection is thru the blood current and the bacilli thus find their way to the apex of the lung.

Tonsillitis has a tendency to recur at least once a year, and with each attack the tonsil becomes larger. Peritonsillar abscess or quinsy is another form that is almost sure to recur if the diseased tonsils is not removed.

Diseased tonsils are usually accompanied by adenoids as well. It is among growing children that the bad results of enlarged tonsils and adenoids are particularly apparent. The face has a vacant look, the mouth is open and the little one appears inattentive and hard of hearing. The backwardness of such children is not due to natural dullness but to a diseased condition of the throat and nose. Children with obstructed throats and noses sleep with open mouths and snore loudly. Their restlessness and night terrors are but evidences that they do not sleep well. Every one whose nose has been obstructed by a cold in the head knows the effects of a night of broken rest. The head aches, the throat is dry and there is a feeling of general misery. This shows in a

measure how the little one feels night after night till the trouble is removed.

The most troublesome form of diseased tonsil is not necessarily the enlarged tonsil. Oftentimes the flat submerged tonsil may be diseased and contain a ramification of diseased crypts deep down in the neck. A large tonsil with open crypts gives less trouble than a small one the spaces of which may be filled with decomposing foul smelling debris which keeps the throat inflamed. Many an annoying cough and many an irritable throat and offensive breath are due to diseased tonsils.

Greber, of Jena, who made an extensive study of the tonsils in health and disease has come to the conclusion that in civilized life the tonsils are not only useless but dangerous. He advises that all children have their tonsils removed whether they are troublesome or not. He considers such a course as beneficial as vaccination for smallpox. It is certainly a fact that such a course would greatly lessen the mortality among infants, and many children would enjoy much better health.

It may seem an extravagant claim but there are those who contend that more deaths result from diseases directly traceable to diseased tonsils than from appendicitis.

The public in general and the public school authorities in particular should understand and appreciate these facts and, recognizing the harm that may come from enlarged and diseased tonsils, insist on their removal.

The unreasonable prejudice (and all prejudice is likely to be unreasonable) of many people against having the tonsils removed from their children's throats is lessening, but is still in many cases found to be very decided. They seem to feel that the tonsil has some vital function to perform which they do not understand, and that its removal even when badly diseased will in some mysterious way interfere with the well being of the child. The sooner this ungrounded belief is uprooted and the removal of diseased tonsils becomes universal the better for the race, and just so soon will a certain proportion of school children now dull and listless in their work become more attentive to their studies and accordingly accomplish better work and also improve greatly in facial expression. And this will not be all, the liability to deafness, middle ear disease, mastoid involvement, gastric and intestinal disorders will be greatly lessened; and who can estimate the decreased mortality that will thus be accomplished.

DISCUSSION.

ROBERT MORTIMER JONES (New York): The field of preventive medicine is one which is widening yearly, and in no branch of the art more than that of the laryngologist and rhinologist.

That the faucial tonsils, when diseased, are a menace to health, a constant source of irritation, a most favorable site for the propagation of germs, and an avenue of entrance into the general circulatory system the writer of this paper has clearly emphasized.

The great importance of directing attention to the pharyngeal tonsil, so frequently hypertrophied in children, is a fact which demands emphasis, for this condition leads to so many grave results that removal is one very radical advance in the prevention of marked and lasting effects.

The frequent attacks of acute rhinitis, hypertrophy of the inferior turbinated bodies, loss of resonance of the voice, mouth breathing resulting in chronic nasopharyngitis, pressure on the Eustachian orifices, affecting the hearing, protrusion of the upper lip, facial deformity and irrregularity of the teeth may all be prevented by adenectomy.

The recent investigations and observations made by those interested in the inmates of homes and reformatories show that the morals of children operated upon for adenoids are influenced: truants and those not interested in school or study develop a fondness for educational pursuits, and they even take first places in their classes if thus operated successfully

Nor must the lingual tonsil be forgotten, for many cases of reflex cough of long standing and absolutely unyielding to any medical treatment will entirely disappear after the removal of a hypertrophied lingual tonsil which has impinged upon the epiglottis.

OTIS D. STICKNEY (Atlantic City): As the arguments and logical reasons for the early removal of tonsils have already been so completely and forcibly presented and in such a convincing manner, in the paper now under discussion, there seems to remain but little more to be said. However, by emphasizing the thoughts already expressed and by adducing a few others the cause of preventive medicine may be furthered. The author of the paper having included both the faucial and pharyngeal tonsils in his paper, the same will be done in this discussion. The anatomy and physiology of the tonsils will be ignored and they will be considered only from a pathologcal viewpoint in their relation to disease of other organs and the general infections.

It is generally known that diseased tonsils are usually accompanied by enlarged cervical glands. If these glandular enlargements are not of a tubercular nature, but are simply due to toxic absorption, they as a rule undergo resolution after removal of the offending tonsils. But if these glandular enlargements be due to their invasion by the tubercle

bacilli, which have gained access thru the diseased tonsils and connecting lymphatics, the enlargements will often not subside upon the removal of the tonsils but will require surgical removal. If this be not done, tuberculosis of any variety or in any locality may follow. If this glandular involvement could be anticipated by the removal of the offending tonsils many of the cases of tuberculosis would be prevented and many of the operations for the excision of cervical adenopathies would be unnecessary.

That the tonsils possess any valuable protective function against the infectious diseases is doubtful. On the other hand it is quite generally admitted that the unfortunate possessor of diseased tonsils is very susceptible to diphtheria, scarlet fever and rheumatism.

One observer recently stated that in 176 cases of articular rheumatism 21 per cent. had been shortly preceded by tonsillitis. If a fair proportion of these cases of rheumatism could have been prevented by the early removal of the tonsils there undoubtedly would be many less cases of chorea, endocarditis and other pathological conditions which follow rheumatism.

As to their evil effects upon the ears, all are perfectly cognizant. It must be acknowledged that cases of long standing deafness, tinnitus and suppuration yield unkindly and frequently not at all to treatment. When we reflect that a large percentage of these cases could have been prevented by the early restoration of the nose and throat to a more nearly normal condition, the aural indications alone are more than sufficient argument for the early removal of the tonsils.

The facial expression has already been described by the writer in the paper under discussion. It might not be amiss to add that most of these mouth breathing children have high, sharply arched palates This deformity causes not only a faulty irruption of the teeth with overlapping and crowding, but also interferes with the vertical development of the septum. Prevent the mouth breathing and the result will be healthier and more evenly arranged teeth and lessened number of deflected septa.

The time to treat these mouth breathers is early, while the features are yet mobile, and not to wait until the fixity of the bones has occurred and the dull, stupid, vacant expression and mental condition have become permanent. Many of these children are backward in commencing to talk, and when they do begin they have far greater difficulty in pronunciation than their more fortunate brothers who are not afflicted with enlarged tonsils. Undoubtedly some of the cases of deaf-mutism are due to the presence of enlarged tonsils and adenoids in infancy.

Associated with enlarged tonsils and adenoids there is frequently a swollen, catarrhal condition of the nasal mucous membranes. Inflammation and interference with the drainage of the accessory sinuses of the nose may thus occur, and there is no doubt but what a certain percentage of the cases of these troublesome affections is due to hyper-

trophied tonsils and adenoids. The relation which these diseased sinuses bear to diseases of the optic nerve, orbit, and the eye muscles is daily gaining recognition. Cases of phlyctenular inflammation of the conjunctiva and cornea and blepharitis are frequently rightly attributed to enlargement of the pharyngeal tonsil and its coexisting catarrhal condition of the nose. Disease of the lacrymal sac and lacrymonasal duct is often of the same origin.

Gastrointestinal diseases might frequently be prevented by the removal of these enlarged glands.

Accepting the truth of most of this it is our duty to advocate strongly the early removal of these enlarged tonsils and adenoids whether or not they are apparently producing symptoms.

THE CLEANSING OF PURULENT EARS.

WILLIAM L. BYWATER, M. D.,

Iowa City, Ia.

THIS is a subject about which much has been written, and it is doubtful if anything new can be said upon it. However, if I cannot give you any new ideas, it may be that a repetition of old ones will not be amiss, as oftentimes things written upon such an important condition as the one under consideration will bear repetition.

Suppurating ears, like the poor, have been and probably always will be with us; the number of cases varies from year to year, depending largely upon the number and character of epidemics which superinduce otitis media, the time of year the epidemics are most prevalent, the atmospheric conditions, etc.

Following closely upon the usual list of symptoms found in these cases is the appearance of pus in the external auditory meatus. Generally the flow is profuse. The pent up pus has accumulated in sufficient amount to cause a rupture of the tympanic membrane. The obstructing drumhead has no doubt held the pus in check until it has been forced into all cavities communicating with the middle ear. Perforations follow in due time and drainage, more or less free, relieves many of the symptoms.

Or the case comes to you weeks, months or even years after the acute symptoms have subsided, not for a diagnosis but for a cure. The question of the mode of treatment at once presents itself: will it be medical or surgical? Will you arm yourself with the old reliable weapons found in our materia medica or will you resort to the knife?

Pardon me for the digression, but I cannot pass this opportunity of referring to the great tendency of the age to rely entirely upon surgical measures. There seems to be a surgical mania taking hold of the profession and no differentiation is made between those cases which should be treated with medicine and those requiring surgical interference, but all are dumped into the latter class.

The aim of the specialist should be to give his patients the very best treatment possible. If that can be done by the use of remedies, then

they should be used. If they fail or if the symptoms point to more radical treatment, then surgery is justified. The physician who can effect a cure of acute or chronic suppuration of the middle ear with the aid of medicinal agents, has accomplished far more than has he who calls the knife into use.

Having decided that the case is one which does not call for surgery, the mode of treatment at once presents itself for decision. It has been said that "cleanliness is next to Godliness;" in no place is this truer than in the treatment of suppuration of the middle ear. Pus accumulating in the external auditory canal is bound to interfere more or less with the free drainage from the middle ear. Any interference with drainage from the cavity is at least liable to cause an extension of the suppurating process to adjacent parts, and as a result the condition assumes greater gravity by being complicated with a suppurating mastoiditis. It is my opinion that many a case of mastoid disease has followed careless and insufficient cleansing of suppurating middle ears. The reverse is also equally true that many a case of mastoid disease has been averted by careful and thoro cleansing of the suppurating area.

Again, thoro cleansing is desirable and necessary to expedite the healing process. It may be that the indicated remedy will be able to clear up the case unaided; but this is certainly asking more than should be expected of any drug. In so doing you are simply imposing upon a good friend, you are inviting failure, you are dishonest with yourself, your patient, and your remedy. You are untrue to your trust.

The very first thing to do is to cleanse the affected parts and then keep them clean. The modes of cleansing are very numerous; the character of the individual cases will somewhat modify the manner of cleansing. In a general way this much can be said: when you once get a suppurating ear thoroly cleansed keep it so, and by so doing give the remedy every chance in the world to cure the condition.

With the average case, a good thoro cleansing can be effected by the free use of warm water, peroxide of hydrogen or other cleansing agent. This once accomplished and the ear thoroly dried, the parts can be kept in proper condition by simply removing the pus with the cotton wrapped probe, being careful to keep up the operation until the cotton comes away perfectly dry.

As the case differs from the ordinary one the process of cleansing must also differ, and the more thoro you are in keeping the parts clean the more will you accomplish in your treatment.

Repeated douching of these cases is not desirable, as it many times increases rather than diminishes the amount of suppuration. It has been my experience that the cleaner and dryer you can keep the diseased ear, the more successful you will be in your treatment. I have seen many cases, where specialists have advised operative procedures, speedily cured by thoro and persistent cleansing and the administration of the indicated remedy.

I hold to the opinion that suppurating ears which can be cured with medicines should be, as an ear treated and cured is far better than one which has undergone a surgical operation.

In conclusion, I would repeat that careful cleansing of purulent ears will often prevent mastoid disease; if done thoroly it will hasten the termination of the suppurating process and give the indicated remedy a fair chance to make a cure.

DISCUSSION.

CHARLES L. RUMSEY (Baltimore): Purulent discharges from the middle ear demand attention from every practitioner of medicine as well as from specialists. If such cases are properly treated from the beginning, they can be cured; if neglected they not only become disgusting to the patient and his friends, but are a constant source of danger to life.

I concur with Dr. Bywater in his attitude towards thoro cleansing upon which would depend the treatment.

My criticism of this excellent paper is the essayist's omission of describing any method of treatment. I use, almost exclusively, dry treatment with the cotton probe, or probably a cotton twist projecting beyond the forceps. After this dry method of treatment I often use a 10 per cent. to 20 per cent. solution of carbolic acid in glycerine. The acid disinfects and anesthetizes without corroding the tissues when it is combined with glycerine, and the glycerine unloads the blood vessels of their superabundant serum. After thoro cleansing I use aristol. I prefer this to any other single medicament because it is an impalpable powder; it has a cicatrizant as well as an anesthetic property. I believe the tendency is to use too much powder, even packing the ear, as with boric acid, which has a tendency to cake. Let any powder dust well the mucous membrane.

It is attention to details which brings results in these cases. If the acute cases are properly treated we shall have but few chronic cases to treat.

Dr. Bywater does not mention anything about surgery further than to

use it if other methods fail. I believe in all purulent cases, the first observation is to know the capacity of the perforation to meet the necessities of free drainage. An artificial opening, or enlarging the opening vertically, will hasten a cure. I have found the indicated remedy helpful in these cases, but never alone in my experience have they cured a purulent case.

H. D. SCHENCK (Brooklyn): I have been interested in the writer's conservative treatment of these cases and am glad to note that there are others beside myself who thoroly believe in resorting to surgical treatment only as a last resource, after other methods have been given a fair trial. These cases, of course, divide themselves largely upon the ground of activity of the pus germ with which the ear is infected; but whether we operate or not depends very largely upon the conditions, it seems to me, to be found in the drum membrane. If the perforation is large and low in the membrane and offers a good chance for complete drainage, surgery will probably not be needed, but if it is high up in Schrapnell's or just below the ligaments it will probably need to be enlarged and proper drainage given before cleansing will be of any value.

I coincide with the writer in the belief that in peroxide we have a valuable agent for the treatment of these conditions, in spite of the fact that most of the men have recently advised antiseptic syringing, with more or less complex antiseptic solutions. It seem to me that the peroxide of hydrogen leaves the tissues much drier than the syringing and has this added advantage.

I find following the cleansing with the peroxide of hydrogen that alcohol, with four grains of boric acid to the ounce, is valuable as a mild astringent and antiseptic. With the free opening in the lower part of the membrane the inflation of the middle ear furnishes an excellent means of cleansing this cavity and furnishes an additional exit for the pus thru the Eustachian tube.

THE MYSTERIES OF GLAUCOMA.

A. B. NORTON, M. D.,

New York.

WHEN President Mann invited me to prepare a paper upon this topic, the title so attracetd me that I accepted before realizing how great a mystery glaucoma still really remains. After a thoro search of the recent literature one is surprised at how little has actually been accomplished in recent years toward solving this, the greatest problem in ophthalmology.

A few of the queries that occur, of glaucoma simplex especially, are: What is the real underlying cause? Why should it occur in one person and not in another? Who can foresee and prevent its onset? Who can explain why after iridectomy some cases are checked, others steadily progress, and still others go rapidly on to blindness? What rule can be laid down for the treatment of noninflammatory glaucoma when one authority says an iridectomy should always be made, another that iridectomy is harmful in this disease, the third that eserin should be employed in all cases of the disease, the fourth that eserin is of no value, the fifth operates early, the sixth operates as a last resort after other treatment has failed?

In preparing this paper recent ophthalmological literature has been given an extended examination in hopes that some new light would be thrown upon the mysteries of glaucoma, and while we have been disappointed in this respect, yet the investigation has proven a very interesting one to the writer.

As we have nothing original to offer, we shall only endeavor to lay before you by numerous and free quotations some of the facts gathered from the writings of others, hoping that they may incite further experiments and investigations toward the ultimate solving of these problems.

First, let us consider the more recent theories as to the cause of glaucoma. Schoen, of Leipzig, says in the *Ophthalmic Record,* Oct., 1902: "The real cause of the increased tension is the loss of support of

the ciliary muscle and its tendons, thereby permitting the intraocular pressure to be exerted directly upon the sclera and the tension then becomes perceptible to the touch."

He considers the degeneration of the ciliary muscle to be the missing link explaining glaucoma simplex. The result of Schoen's researches is not a favorable one when considered from a therapeutic view point. If the disease is dependent upon a degenerative change what hope is there of a cure in any well established case? On the other hand, if this theory becomes an established fact we may foresee this tendency and possibly do something to prevent or delay the progress of the disease in the early or prodromal cases.

Wahlfors (*Archives of Ophthalmology,* Nov., 1903) in an article on glaucoma combats the generally accepted retention theory that the cause of glaucoma lies in an interference with the outflow of liquids from the eye due either to a blocking of Fontana's spaces (Knies, Weber and others), or to a blocking of the channels at the posterior pole of the eye as suggested by Stilling, or to both these factors (Laqueur). This theory he claims does not cover cases of glaucoma without increased tension which he and others claim do occur. He asserts that investigations have been based upon increased tension as the starting point; that pathological examinations have only been made after increased tension has existed, and are due to the increased tension but are not proven to have existed before the rise in tension, and therefore a causative factor.

Wahlfors considers hemeralopia as the first evidence of the beginning glaucomatous process, and recites a case where it was present five years before other symptoms of simple glaucoma. Hemeralopia is not always noticed by glaucomatous patients, because so slight it is often overlooked while confined to the periphery. The cause of the hemeralopia is a functional disturbance of the rod and cone layer of the retina due to imperfect nutrition, and as the vessels of the choroid supply nourishment to the outer layers of the retina we must look to the choroid for the preliminary cause of simple glaucoma. Reduction of the light sense in simple glaucoma is a symptom generally overlooked. It was first noticed by Foerster, and later emphasized by Mauthner. It is, however, often the symptoms that calls patients attention to this affection, and may appear years before the other symptoms of glaucoma, and be present while the central and peripheral field of vision and tension are normal.

Goldzieher, in 1875, spoke of choroid atrophy as the cause of glaucoma. Fuchs also held this view. Extensive choroidal atrophy is often found in glaucoma. This choroidal atrophy usually begins at the periphery, where it is frequently overlooked, and extends toward the center.

The functional disturbances of simple glaucoma—the diminution of light sense and of central vision, and a narrowing of the field—are in perfect accord with the supposition of choroidal atrophy.

Excavation of the nerve head he claims is due to diminished resistance of papillary tissues primarily due to atrophy from extension of atrophic process in the choroid. Locker's experiments on normal eyes show that intraocular tension must be raised to 135 mm. Hg. to produce excavation of the disc. In glaucoma it ranges from 30 mm. to 80 Hg., very exceptionally 100 mm.; therefore excavation of the disc must depend upon the tissues of the disc having lost part of their resistance. Cases are seen with greatly increased tension for months without excavation, and others of excavation without increased tension

Horstman (*Arch. Ophthal.,* Vol. 33, p. 489) says of glaucoma simplex, "It runs a very chronic course and usually terminates in blindness."

Von Graefe considered that these cases should be separated from glaucoma and studied under another name. He thought the cupping of the disc, a lesion of the nerve itself, that it should not be considered diagnostic of glaucoma, because in some eyes its etiology was different; he said that iridectomy had never been known to cure a case of this nature, to improve the vision, or to enlarge the field.

Donders also pointed out that it was a well known fact that cupping to the margin of the disc is frequently present when no increase of tension can be detected. Such a condition might arise from an atrophic disease of the optic nerve when there was previously a physiological cup.

Under glaucoma simplex should be included only those cases in which there is cupping of the optic nerve, loss of vision, a defective field, and interference with color and light sense, while the eye outwardly appears to be perfectly normal with no traces of inflammation and no increase of tension.

Zimmerman (*Beitraege zur Augenheilkunde,* 1903) says that most theories of glaucoma lack sufficient proof. After elaborately collecting

the literature he concludes that prodromal glaucoma is not a disease proper of the visual organ, but a product of a disturbance of circulation.

TREATMENT OF GLAUCOMA.

Zimmerman says treatment must be directed to remove the disturbance of circulation.

Wahlfors says there are no sure means of checking the atrophic process in the choroid, tho he thinks that strychnin injections have enabled him to preserve the vision for many years.

He says of eserin: "In simple glaucoma, in which the atrophic process is confined exclusively to the choriocapillaries, eserin has no effect; but as it is not possible to say whether the process is confined to one layer alone we may take it for granted that different layers are affected, tho in different degrees, and hence in most cases of simple glaucoma a continued use of eserin acts well and in many cases prevents increase of tension."

Posey (*Journ. Amer. Med. Assn.,* Feb. 23, 1907) in a paper upon the treatment of simple chronic glaucoma by myotics, says: "It is the object of this paper to extol the action of myotics in the treatment of simple chronic or noninflammatory glaucoma, to call attention to the very satisfactory results which attend the use of these drugs in this class of cases, and to urge their more intelligent and persistent administration." Eserin should be employed in all cases of the disease."

De Schweinitz "Is satisfied of the value of myotics in this disease, no matter at what age it occurs, and believes that they should be given continuously so long as they do good."

De Wecker, in a monograph upon the value of iridectomy in glaucoma in 1901, says: "To his surprise he found that most ophthalmologists used operative treatment in glaucoma simplex."

Valude and Parinaud in the discussion upon chronic glaucoma (*Soc. d'Ophthalmologie de Paris,* 1904), stated that they had preserved good vision for as long as twenty years with myotics alone.

Berry (*At Ophthalmic Section of British Med. Assn.,* 1904) says in his opinion myotics are practically useless in glaucoma simplex.

Little (*Pres. Ophthal. Soc. of the United Kingdom,* 1901) says myotics in his opinion were purely palliative and not curative in primary chronic glaucoma.

Grand Clement (*Die Ophthalmologische Klinik,* Aug., 1904) is convinced that the majority of cases of glaucoma are curable by the use of adrenalin.

MacCallan (*Ophthal. Soc. of the United Kingdom,* May, 1903) reported five cases of glaucoma in which adrenalin caused increase of tension.

Senn (*Wochenschrift fur Therapie und Hygiene des Auges,* Jan., 1905) reports two cases where the use of adrenalin 1:1000 was immediately followed by disastrous results, and sounds a warning against its use.

OPERATIVE TREATMENT—IRIDECTOMY.

Posey (*loc. cit.*) says: "I use the term 'universally conceded," for I believe that the profession generally has adopted the views of such investigators as Nettleship, Bull, Priestly Smith, Knapp, Collins and Gruening, all of whom recommended early operation in the simple chronic as well as the congestive forms of glaucoma."

Berry says of glaucoma simplex: a successful iridectomy was the only known cure. Out of sixty-seven cases he had operated, 62 per cent. held their ground from six to twelve years, while with one exception the tension was normal. He thought that an operation should be done in every case, and the earlier it were done the better, but he would never hesitate to operate on an eye even if the field were contracted to the fixation point, provided there was any vision worth saving.

Bull (*Arch. Ophthal.,* Vol. 31, p. 56) says: "Simple chronic glaucoma should always be operated early in the disease, before much contraction of the field has occurred. The earlier the iridectomy is done the more certain the effect; and done early it offers the best prospect for the arrest of the process. In advanced chronic glaucoma with great contraction of the visual field, marked impairment of vision, undoubted increase of tension, and deep cupping of the disc, the prognosis for operation is distinctly unfavorable."

Bull (*Trans. Amer. Ophthal. Soc.,* 1902) in a paper upon the post operative history of fifty cases of simple chronic glaucoma says: The operative procedure was iridectomy, made on ninety-four eyes; the *effect of iridectomy on central vision* was gradual failure in fifty-eight eyes, maintenance of existing vision at time of operation—while under observation from two to eighteen years—in twenty-four eyes.

Tension after operation; immediate diminution in eighty-nine eyes, permanent diminution in eighteen eyes, and no effect on the tension in five eyes.

The field for form; was unchanged in three cases and widened in but one eye, while there was additional loss in all other eyes.

The best results as to ultimate vision occurred in cases in which central vision was the best and the fields the least encroached upon at the time of the operation. Where the disease exists in both eyes better results as to visual acuity and field occurred from simultaneous operation on both eyes.

Vettiger (*Weiner Med. Wochenschrift,* Aug., 1903) on the results of iridectomy in glaucoma simplex says, there was improvement in 0 per cent., status idem in 25 per cent., conditions became worse in 67 per cent., and loss of the eye in 8 per cent.

Wygodsk (*Klin. Monatsbl.,* 1903, p. 177)—lasting results of iridectomy in primary glaucoma—says that out of 104 cases of typical glaucoma simplex 0.96 per cent. showed improvement, 10.5 per cent. status idem, 52 per cent. impairment, 36.5 per cent. amaurosis.

Horstman (*Arch. Ophthal.,* Vol. 33, p. 489) in a paper on glaucoma simplex cites Von Graefe who in 1857 said that iridectomy had never been known to cure a case of this nature, improve the vision, or enlarge the field. He also refers to Donders as saying, "In such cases iridectomy is not only useless, but may be followed by a more rapid loss of vision."

Wahlfors says in simple glaucoma there are no indications for iridectomy as a curative procedure, but it may be of prophylactic value as acute congestive attack may come on.

He disputes the theory that iridectomy benefits by opening the filtration angle, but claims the beneficial action lies in its effect upon circulation as described by Exner, who says that in the operation a portion of the iris is removed up to its ciliary attachment, and that the short arterial twigs from the major arterial circle of the iris form direct anastomoses with corresponding venous twigs. The arterial current thus passes thru the fine calibered and rich capillary network; the resistance in the blood current is therefore diminished and the tension sinks. Iridectomy thus works, as Knapp expresses it, as a safety valve.

Kipp (*Archiv. Ophthal.,* Vol. 31, p. 58)—iridectomy in glaucoma—

says: "In glaucoma simplex iridectomy is indicated if the eye shows an appreciable increase of the intraocular tension, if central vision is good, and if the visual field is not much contracted. It must be admitted that the operation here never restores the vision that has been lost, or restores the field of vision; all we can hope for it is to arrest the progress of the disease. In this form greater impairment of sight, some time blindness, will follow the operation in cases in which the defect of the visual field is great and reaches near the fixation point; in such cases he does not urge the operation, but explains to the patient's relatives or friends the natural history of the disease, the chances of benefit and the possibility of disaster following the operation and leaves the decision as to what is to be done to them.

The cystoid scar after an iridectomy, due to an incarceration of the iris in the angle of the wound, is believed by many to act as a safety valve, permitting filtration, and is opposed by Knapp and others.

The value of the cystoid scar was first noticed by the writer in a patient who had been operated by Dr. Knapp in one eye with a perfectly smooth iridectomy. The other eye had been previously operated with an incarcerated iris by another operator. At the time of my examination the eye successfully operated by Dr. Knapp had again increased, while the other eye with a cystoid scar had had no return of the glaucoma. Since then it has always been my rule to endeavor, in iridectomy for glaucoma, to catch the iris in the wound, creating a cystoid scar, and I believe with better results—so far as permanently reducing the tension—than in smooth iridectomies.

SCLEROTOMY.

Andogsky and Selensky, of St. Petersburg, in an article (*Archiv. Ophthal.*, Vol. 31, p. 450) on The role of scleral scars in operations for glaucoma, conclude after an elaborate series of experiments that "the truth therefore appears to lie midway between the claims of the advocates and the objections of the opponents of sclerotomy."

They claim that sclerotomy forms a new artificial channel of exit for the aqueous, if only for a limited time, and that in this way in many cases of glaucoma in which the periphery of the iris rests upon the cornea but is not yet adherent a restoration of normal tension may be

brought about and with the use of myotics the chamber angle and its filtration channels opened again. Experiments seem to show that permeability of the scleral scar is of short duration. "In other cases, however, of complete blocking of the natural channel of outlet, the effect of the operation, even when most favorable, is limited to a transient diminution of tension without any alteration of the anatomical basis of the disease."

CERVICAL SYMPATHECTOMY.

Rohmer (*Annal. d'ocul.*, CXXVIII. p. 1), on Extirpation of the ciliary ganglion, tabulates 116 cases of his own and others, and draws the following deductions: "Apparently the results were best in glaucoma simplex, of which forty-three cases were operated with improvement in five-sixths. Also in chronic inflammatory and infantile the results were good, improvement in two-thirds, but in acute and subacute they were of doubtful value.

Loring (*Archiv. Ophthal.*, Vol. 33, p. 529), The present status of cervical sympathectomy for glaucoma simplex. The literature at that time showed sixty cases, counting each eye as one case. Selecting from these cases those under observation for at least three months he finds forty-one cases, and from these summarizes as follows: "A study of results fails to show any factor that determines how far the operation will be sucessful in any given case, or what determines the duration of a favorable result, or any marked gain in the early versus the late operation; possibly shows most favorable results from the bilateral operation.

Still it may be said that in glaucoma simplex the tension is reduced in almost all cases generally to normal, and that it may remain so for many months. The vision shows at least a temporary improvement in a majority of cases, often an improvement of considerable duration, unless an advanced atrophy makes vision out of the question.

Altogether Loring believes that sympathectomy is a distinctly justifiable operation that ought to be more often tried as a final resort in glaucoma simplex when notwithstanding myotics, iridectomy and sclerotomy, the disease progresses steadily toward eventual blindness.

Wilder (*Annal. Ophthal.*, Vol. 13, p. 17, 1904)—The influence of resection of the cervical sympathetic ganglion in glaucoma—reports

seven cases of his own and gives statistics of many other cases, from all of which he concluded: "The statistics up to date seem to indicate that the simple chronic form is the one most suited for it next to the hæmorrhagic form, if that can be determined." He agrees with Abadie, who says: "In acute forms of glaucoma and in subacute with intermissions practice first iridectomy, and if it fails do sympathectomy. In simple glaucoma use myotics twice a day, if they suffice continue them; if in spite of their systematic employment the vision fails, do sympathectomy.

SUMMARY.

A. So far as acute inflammatory glaucoma is concerned the writer finds nothing new as to the cause, or the universally accepted method of treatment; *i, e.,* first myotics, secondly operations—preferably iridectomy.

B. In noninflammatory glaucoma, or glaucoma simplex, the mysteries are still as impenetrable as ever. The theory of Wahlfors, that "we must look to the choroid for the primary cause of simple glaucoma," seems to the writer to merit very careful consideration, and we hope that further investigations along this line will be carried out.

C. As to the treatment of simple glaucoma. My belief of some years that nonoperative treatment gives better prospects of checking the advance of the disease than does any form of operative procedure is confirmed by the study of the literature made in the preparation of this paper.

D. While the greater number of our authorities still recommend iridectomy, yet from a careful study of statistics the results are not sufficiently encouraging to warrant the endorsement given. Statistics from various sources show improvement in vision less than 1 per cent., retention of existing vision in from 10 per cent. to 25 per cent., failure of existing vision in from 52 to 67 per cent., and complete loss of vision in from 8 per cent. to 36 per cent.

I believe that myotics followed out thoroly and continuously will show much more favorable results than does iridectomy; but we have not these figures because the advice for years has been to operate, and very few have been willing to follow out to the end the use of myotics in a sufficient number of cases to furnish any data.

E. Cervical sympathectomy, from the statistics that have fallen under the writer's observation, seems to offer better results in glaucoma simplex than does iridectomy.

F. The writer will continue to treat glaucoma simplex by myotics, using them as advised by Posey, the application of massage, electricity, the leucodescent lamp, and the indicated remedy. If, after thoro trial for several months or years, there is a steady loss of vision and a progressively contracting field sympathectomy will be considered.

DISCUSSION.

E. J. BISSELL (Rochester): The title of the paper is well selected. Mysteries there still are in glaucoma, as Dr. Norton clearly sets forth. A resumé paper of this kind is of great value, since it brings into focus the present status of a most important and perplexing subject. Criticism of the paper is unnecessary, but criticism of ourselves for this chaotic state of affairs might be pertinent. However, I fear that I can only add to the mystery. The most significant fact I have lately seen is suggested in the case of congenital total absence of the iris and ciliary bodies with glaucoma reported by Dr. Dennis (*Arch. of Oph.*, vol. XXXV, page 527). Permit me to quote from his paper: "One of the most interesting features of this case is the action of eserin in reducing the tension. It is usually thought that the lowering of the eye tension by the use of eserin is produced by the myosis. In this case, where the iris and ciliary bodies are absent, it shows that the lowering of the tension is produced by some other cause than its action on the iris. This fact I was able to prove on various occasions, when by stopping the eserin for a day or two there would be an invariable rise in tension. The action of eserin in lowering ocular tension must be from its well known power to contract the blood vessels, as well as its action in contracting the pupil." This fact would seem to give added support to the theory which is rapidly gaining acceptance that the primary condition in glaucoma is a circulatory disturbance in the choroid.

In estimating the tension of an eye it is well to remember that there are physiologically hard and soft eyes. Lately I have been interested in taking the blood pressure of glaucomatous patients. With Janeway's sphygmomanometer I do not find that it is abnormally high. Today I took the blood pressure of a man fifty-eight years old with tension O. D. + 1, O. S. +3, and totally blind. It was 140 mm. Hg., which is certainly not abnormal.

Careful testing of the light sense gives promise of aiding in an early diagnosis. The apparatus of Percival J. Hay, of England, seems better for this work than Bjerrum's screen.

I do not now give quite as gloomy a prognosis as formerly in glau-

coma simplex. My confidence is increasing in the value of the therapeutic lamp, suction massage, galvanism, general (not local) application of high frequency, and the careful but continuous use of eserin.

G. A. SUFFA (Boston): Dr. Norton has forcibly demonstrated that in glaucoma of any form we are dealing with a very complex problem, about the etiology and treatment of which a great deal of theorizing without a secure foundation has been done; and that no single theory as to the cause yet advanced has covered all forms of glaucoma.

The writer, in 1903, presented a report to this society of an incomplete line of investigation conducted upon normal and iridectomized rabbits' eyes by Dr. Solomon Fuller, pathologist at the Westboro Insane Hospital, and himself, which investigation had for its object enlightenment both upon the cause of glaucoma, and the manner in which cure or drainage was re-established thru operative procedure upon the eye. It was suggested that relief or cure was not necessarily brought about by freeing the iritic angle and establishing drainage directly thru the canal of Schlemm, the generally accepted idea of normal drainage canals, but that it was at least probable that the cure of glaucoma, like its cause, was of such a complex nature that primarily, at least while the cut tissues were still unhealed, changes took place in the vascular tunic, the uveal tract, that decided the course the disease would pursue, and that at this point favorable action upon the disease must take place or failure would result, even tho healing progressed normally.

That blocking of the iritic angle is primarily the cause of glaucoma (which is the generally accepted theory), I cannot believe. Were this the starting point of glaucoma, we would find a deep anterior chamber, and not a shallow one, as is present in all cases of primary glaucoma. The presence of a shallow anterior chamber, necessarily proves that retention of intraocular fluids first take place back of the lens and its suspensory ligament, and not at the iritic angle, and that the increased tension—the characteristic symptom of glaucoma—while indicating a relative retention of the intraocular fluids, is erroneously used as an argument to substantiate this theory. If the interference with drainage were due to a pushing forward of the iris and ciliary body into the iritic angle, blocking the same, the pushing forward of these tissues must be accounted for, and the closure of this angle in this way, causing retention of fluids at this point, becomes secondary.

Reason as we may, everything points to the uveal tract, back of the suspensory ligament, as the starting point of glaucoma and the intraocular pressure.

That some of the structural parts of the eye, most likely the uveal tract, have to a certain extent departed from the normal, whereby certain physical and mental states become the exciting cause of an attack of glaucoma, is probable, otherwise nearly all would have this disease, as few are so fortunate as to be exempt from the physical and mental states known to be a large exciting element in bringing on an attack of glaucoma.

It is my belief, based on the above reasonings, that the starting point of glaucoma lies within the uveal tract, and that the primary changes take place in the circulating tissues, and that it is within these tissues that the finer details of the etiology and cure of glaucoma, as far as the eye is concerned, will be solved, and possibly that an underlying cause may be traced to a deeper constitutional status of the blood or nervous system, or both.

Simple glaucoma with shallow anterior chamber, where tension is recognized, is accounted for in the above way; in those cases either with or without a shallow anterior chamber where tension is not recognized, the condition so closely resembles atrophy of the optic nerve that the diseases can not be differentiated and it may be possible that both diseases exist together, the glaucomatous process being so mild and gradual as to fail to produce any appreciable rise of tension and yet be sufficient to cause the typical glaucomatous cup in the weakened and diseased state of the optic nerve. Thus we have a theory based on logical reasoning, into which all forms of glaucoma fit admirably, even the glaucoma accompanying cyclitis, if we accept the statement that the retention of fluid causing the deep anterior chamber is secreted from the ciliary body in front of the ligamentum pectinatum, and that its altered consistency prevents its passage thru the normal drainage channels at the iritic angle.

But theory based on reasoning however logical is unsatisfactory. What we need, to make a theory unassailable and of value from a therapeutic standpoint, is proof of the existence of these conditions by actual specimens of eyes of all kinds and in all stages of glaucoma, and especially in the early stages before pressure has caused secondary changes to take place; also specimens of eyes both successfully and unsuccessfully operated upon.

I fully endorse the author's conclusions as to the treatment of the various forms of glaucoma—except in one essential. His recommendation to attempt to incarcerate the iris in the angle of the wound, for the purpose of producing a cystoid scar, I consider a procedure fraught with dangers that outweigh the possible benefits. Statistics covering many cases showing the attempt to be successful in producing a "cystoid scar" that drains and to prove this method a safe and proper procedure are necessary to be convincing.

A statement from the author giving the number and the results, both as to the relative number of cystoid scars produced, the number of cures and the complications following, will be instructive. Also whether an attempt was made to incarcerate the iris at both angles of the wound.

G. DEW. HALLET (New York): In regard to the cystoid cicatrix we should remember that the iritic substance is not permeable by the aqueous humor, hence if the cicatrix is lined with iritic substance it will not aid in filtration. It must be opened thru the sclera and if possible lined with conjunctival membrane. In connection with this sub-

ject I have within a year seen two cases of secondary glaucoma developed from a cystoid cicatrix, and speaking of the subject of myotics I have one case under observation where simple chronic glaucoma has existed for sixteen years, and during most of that time maintained a vision of $^{20}/_{16}$. It is only in the last few months that it has diminished; during all of that time the pupil has been kept contracted by the frequent use of myotics.

J. A. CAMPBELL (St. Lous): Dr. Norton's excellent resumé should remind us that it is impossible to take positive views of such a subject. I have presented two papers upon glaucoma, one some years ago, and then I took the ground that glaucoma is not a disease of the eye at all but is simply a reflex neurosis. During late years the same opinion has been expressed by others. All operations have been failures in certain cases, and then when I consider that cases have been reported as the results of sudden fright—the fright caused by the sudden shutting down of a window, for instance—I ask myself how is it possible for this disease to be produced by an inflammation of the choroid and the vitreous? After such a sudden beginning of the disease how could we have an inflammation of the vitreous starting up? It seems impossible, or at least improbable.

I saw a case of glaucoma fulminans: it was that (snapping the fingers) quick and nothing was to be seen afterward. She made a perfect recovery, and four years after, without warning, without any evidence of interior inflammation, the other eye went out in the same way. Surely such a case does surround the disease with a terrible amount of mystery. It occurs from so many different causes, so widely different in nature that I think that it would be the wisest way to go back of the eye and ask ourselves what is the condition of the system that is back of this terrible local expression.

The second paper that I wrote was on the increase of tension. At that time glaucoma was supposed to be impossible without increase of tension, and I was almost annihilated for saying that it could exist without increased tension. There is the mystery of its sometimes following cataract operations; I reported numbers of cases in that paper. I gave the statistics at that time, and I still cling to the belief that we must look deeper than to local causes and conditions for the origin of glaucoma. I do not believe that it is a disease of the eye at all. The tension of the eye is controlled by nervous influences, conditions outside of the eye. Other people must really think so or they would not want to excise the sympathetic ganglion in order to regulate the tension of the eye.

We know that division of the sympathetic will cause increase of tension, we know that irritation of the sympathetic will produce increased tension; that being the case why can we not throw out the idea of local glaucoma. I do not believe that it is a disease of the eye at all.

C. L. RUMSEY (Baltimore): Has anyone had experience with the high frequency current?

C. G. FELLOWS (Chicago): It strikes me that if there is any place on the earth where our remedies ought to be efficacious, it is in glaucoma.

DR. NORTON: In regard to the cystoid scar, I presume that I have had that in twenty or thirty cases, and have never seen a bad result. The catching of the iris is only in the angle; I do think that we get some benefit from it. I have for years avoided iridectomy in glaucoma simplex just as long as I can. I advocate the use of eserin. The way that I use it is to begin with a strength that the patient can tolerate and gradually increase it. I usually begin with one-half per cent., and work up to four or five per cent.; it is dropped into the eye five or six times a day, and must be continued months and years. I merely mentioned the high frequency current and the leucodescent lamp. Some of my assistants claim that they have been able to reduce the tension of the eye by the lamp. I tried it a year ago and again lately, but I have not succeeded in doing so.

H. S. WEAVER (Philadelphia): What is the indication for increasing the strength of the eserin solution?

DR. NORTON: Whenever the solution in use begins to lose its effect, as shown by the condition of the pupil.

DR WEAVER: I have a case where the pupil stands at a pin point, and yet the tension is increased.

SOME EXPERIENCES WITH PHOTOTHERAPY.

HERBERT DANA SCHENCK, B. S., M. D.,

Brooklyn, New York.

THE apparatus which has been used has been the leucodescent therapeutic lamp; this consists of a 500 candle power incandescent electric light in a cylindroconical metal hood, lined with a polished nickel plated surface with a reflector of a peculiar type at the back, formed by a corrugated aluminum plate. This is called the condenser. The filament is especially prepared to carry the 12 amperes, which the 500 power lamp requires.

The lamp is supported on a bracket by a counter weight, which makes it easy of operation, and the hood with its movable set screw can be adjusted so as to reach any part of the body and be available in the most effective way, with the greatest ease and advantage in its management.

In 1877, before the Royal Society of London, Downes and Blunt first called attention to the fact that it was the blue, violet and ultraviolet rays in sunlight and not the heat rays that had a destructive effect upon putrefactive bacteria. Sunlight has long been known as a bactericide, but these investigators first discovered that the violet end of the spectrum was the most powerful.

One experimenter claims that the most powerful chemical and bactericidal rays are at about the indigo point of the spectrum.

The manufacturers of this lamp claim that experiments made at the Armour Institute of Technology, in Chicago, have shown that the leucodescent lamp shows a very marked output of rays in the blue violet region, as well as in the luminous and heat portions. Its spectrum is almost identical with that of sunlight, and its infra-red rays, beyond the visible spectrum, give it a very marked vibratory energy in applying dry heat, on account of their more penetrating effect. It has been claimed that it is sufficiently powerful to cauterize, and that this cautery effect may be used in skin lesions. You can certainly raise a blister with it, as I have accidentaly done a few times.

Radiant heat is an anodyne, and has a great power in obtunding pain.

The luminous rays, particularly the yellows and greens, favor nutrition, and are said to increase the number of red blood corpuscles, the per cent. of hæmoglobin, and to increase tissue change in all disease where there is waste of tissue and increased leucocytosis.

The ultraviolet rays—those that have a chemical and bactericidal effect when used alone—have a superficial effect and do not penetrate much below the surface of the skin. It is claimed that the luminous and radiant rays of the spectrum—those with long wave lengths (the white light)—carry the short ultraviolet rays into the deeper tissues and organs. This is one of the points claimed for the leucodescent lamp in that it combines the visible with the invisible spectrum.

Another claim made for this lamp is that the blue violet rays depend for their effect upon their quality, which is improved by increasing the amperage passed thru a single filament. The increased amperage brings the filament to a high point of incandescence, which throws off an intensely white light, in which the frequencies of the upper end of the visible spectrum predominate. The larger the amperage and the higher the temperature of the filament the whiter the light—that is, the more luminous and chemical rays there are the richer is their quality.

This is the reason why one large lamp of 500 candle power has a very different effect from ten fifty candle power globes. The spectrum of ten fifty candle power lamps is that of one of the small lamps and not of the ten. The spectrum of the 500 candle power leucodescent lamp, utilizing 12 amperes, has a broader field of luminous and chemical rays than even the 400 or 300, the rates increasing in a regular progression.

It is claimed that the only value of the fifty candle power lamp is thermic. The combination of all the rays of the visible spectrum in the leucodescent is claimed to be stimulating, oxidizing and to equalize the circulation. It promotes absorption, stimulates excretion of waste, dilates the smaller blood vessels and capillaries and relaxes and expands muscular tissue.

It is claimed to be one of the best instruments we have for equalizing the circulation and relieving pain. In acute inflammation there is first hyperæmia, then congestion and finally complete stasis at and near the center of the inflammatory process; later comes the exudation into the tissues, with a general spread of infection and the accumulation of toxins. If the stasis of the blood vessels be relieved the inflammatory process may be aborted.

The leucodescent rays are claimed to have a powerful effect upon the vasodilator nerves and to quickly draw the blood to the peripheral capillaries, the skin becoming filled with blood, whose blood vessels are competent to hold over one-half the entire circulation of the body.

It is also claimed that the heat is not the only agent in producing this effect, as the application of compresed air during the application of the rays will neutralize the heat, thus showing that what we understand as light is a valuable remedy in all congestions and inflammations.

If we concede that inflammation is "always caused by the presence of one or more kinds of pathogenic microbes (Senn)," the value of light and heat, particularly if they have a bactericidal quality, ought to be of value.

My experience with the lamp dates from its installation, the middle of last December. Since then I have used it considerably in various types of diseases of the eye and in some diseases of the ear. I have not used it in many diseases where there was not evidence of an active inflammatory process. Cases of glaucoma simplex and the case of parenchymatous keratitis might be classed as exceptions.

I will first report four cases of iritis, which have been treated by the leucodescent rays, and in three, I think, it was of considerable value.

The first was an acute attack of **iritis,** which began while the patient was on a trip to Cuba. It was unrecognized for four or five days, but just before leaving for home the United States surgeon pronounced it iritis, and gave him atropin to use on his way North. I saw him the day he arrived. There was very deep injection, moderate photophobia, several adhesions binding the iris to the lens capsule, with moderate pain aggravated at night. The vision was reduced to $^{6}/_{60}$, and there was some haziness in the vitreous of such a character that made me suspect that the iritis might be specific, altho I could get no history of any such trouble past or present. The rays were used daily for four days, then three times a week for two weeks; treatments lasting for about eight minutes, at first with the lamp at a distance of about eighteen inches from the eyes. The lamp was slowly moved from side to side across the eye, the other portions of the face being covered with towels, with a wet cloth over the brows and covering the nose. Later the length of the treatments was increased to twelve, and then to fourteen minutes. By the end of the first four days the inflammatory condition had lessened, and by the end of the first week all except one of the

four or five adhesions had given way. When last seen, at the end of two and one-half weeks of treatment, there was very slight ciliary injection, no photophobia and the vision had improved to $^{6}/_{15}$. Unfortunately I have not been able to see the patient since he stopped treatment to find out whether he has gone on to a rapid cure, as I expected he would. Atropin, four grains to the ounce, was at first used every three hours and towards the last twice daily, and the eye was kept bandaged all the time until toward the end of the treatment when the bandage was left off at night. He was also given mercurius biniodide 3x, one grain every three hours at first, and later three or four times daily, and he was kept in the house most of the time except for his visits to the office. The result in this case was much more rapid than such cases that I have observed of about the same severity which have usually run a course from four to five weeks.

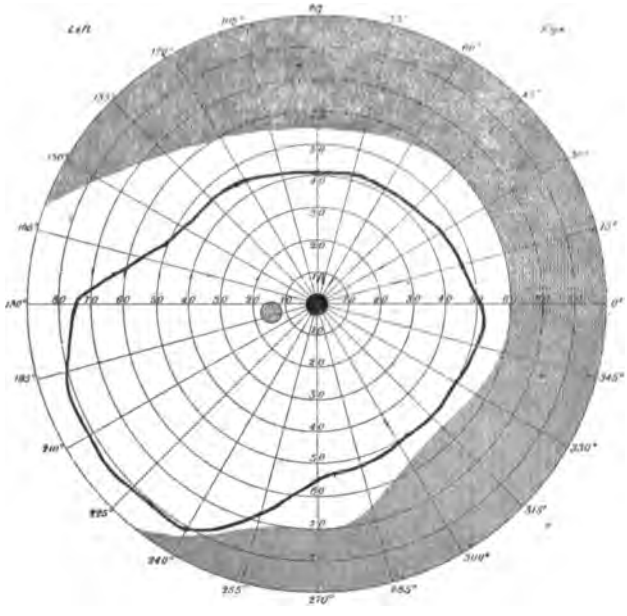
Another case of subacute iritis occurred in a healthy man of about 35 years, who had had an attack of iritis twice before. I could get no specific history. The pupils dilated very promptly. There were no adhesions, only moderate redness, slight photophobia and no pain. In this case treatment was begun on December 28th, and he was treated daily for six days, the treatment lasting from ten to twelve minutes, with only a slight reaction to the rays. Then he was given two treatments at an interval of two days and one after an interval of three days, and the last on the fourth day following. At that time there was little or no signs of inflammation and no photophobia. The vision, which had been slightly impaired, had come up to normal, and he has had no trouble with the eye since.

The third case of iritis was one of a chronic recurrent type, where, thru carelessness a year ago this last winter, a very pronounced attack of iritis was not diagnosed in time to prevent the iris from being so tightly bound to the lens that it loosened at scarcely a single point after the most strenuous use of mydriatics, even of pure atropin. This case was first seen November 25, 1906, and was able to come to the office for one week, when she had an aggravation and daily visits at her home were necessary for the next week. On December 13th she was able to come to the office again, and the rays were first given on the 15th; they were continued every other day for ten days, and then twice a week to January 7th, after which the intervals were made five days, only two treatments being given at this latter interval. No additional adhesions

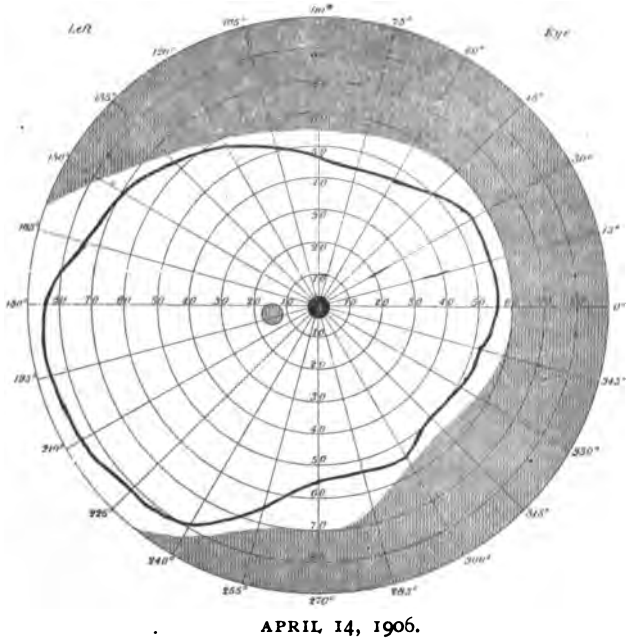
formed, the vitreous haziness cleared away and her vision returned to the point where it was before she had this attack, which was certainly cut short from two to three weeks, when compared with the three or four previous attacks in which I had treated her.

The fourth case of iritis was one of a most intractable and chronic nature in a patient who was being treated at the time for weakness of the heart muscle, so that I was prevented from giving any medical treatment. The case had first been seen in the spring of 1906 in consultation; it had then been running for about three months. The pupil had been dilated and while the inflammatory process was very slight, there being little pain after the pupil was dilated, still adhesions formed almost as soon as the effect of the mydriatic began to wear off. She had kept the pupil in a state of dilatation by a moderate use of scopolamin during the summer. The conditions had changed very little when I saw her first in September, and nothing that I did in the way of changing the local mydriatic to others and giving several remedies as an intercurrent seemed to be of much avail, the eye in December still being irritable and with a tendency for adhesions to form when there was the slightest let up in the mydriatic. The lamp was used with a moderate exposure of ten or twelve minutes, beginning December 17th, and applied daily for one week and then three times a week for the second week, and every other day for the next three weeks. In this case it is problematical how much the lamp did. There was still some irritability and tendency toward the formation of adhesions when the treatment was interrupted. Soon after this she was out of the city for a few days, and had an aggravation of the heart trouble and of the eye condition as well, three or four adhesions forming, which it has since been impossible to break up. No others have formed, however, and the eye has remained quiescent with a fair degree of vision.

One case of **parenchymatous keratitis** of most pronounced type, where both corneas were covered with a dense exudation, which made it impossible to more than count the fingers with the left eye, which was the better one, at one meter. This case was a girl of 17 with a very large amount of hypertropia and hyperopic astigmia, who had had an attack of the same trouble about four years ago, much less severe, but which had left two or three deep maculæ in the right cornea. In the summer of 1905, unknown to me and without the consent of her father, she began wearing an ill fitting pair of eye glasses, which were ad-



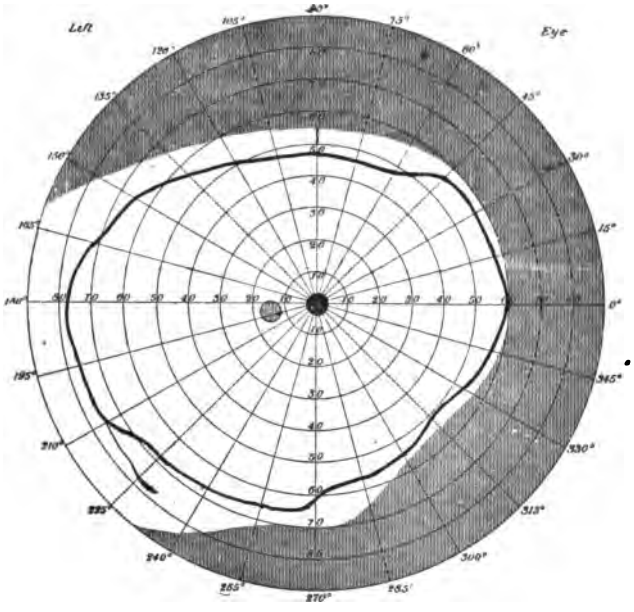
FIRST FIELD—FEBRUARY 23, 1906.



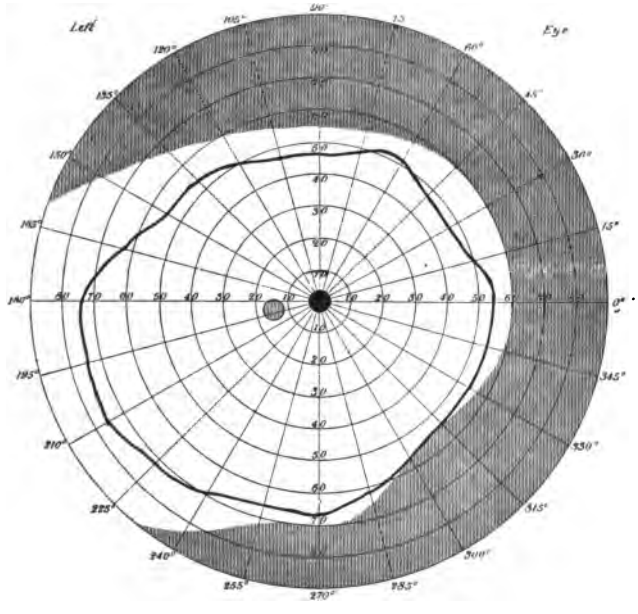
APRIL 14, 1906.

justed so that the axes of the cylinders were not correctly placed. This caused irritation; the keratitis developed in a few weeks, and in spite of local and internal treatment progressed until the cornea of the left eye was covered with a dense exudation, with only a ring of clear cornea at the very periphery. In the right there was thinner exudation between the points of sclerosis left by the former inflammation. The high frequency current was used during the spring and summer of 1906, with the hope of causing absorption, but it brought very little improvement. At first the exudation in the left eye seemed to improve, but soon entirely ceased. During the fall of 1906 there had been very little change up to the time the rays were begun in December. Since then they have been used three times a week for three weeks, and then twice a week up to the present time, with a gradual clearing of the left cornea. The right has changed very little. At first the treatments were given for twelve minutes, then increased to fifteen, then eighteen, twenty and some of the later ones have been twenty-five minutes. There is quite a considerable hyperæmia of the lids and some reaction is shown in the congestion of the bulbar conjunctiva. The vision is improved so that it is $^{6}/_{20}$ s. d. This case shows one marked peculiarity; while the treatments are given of the same length and apparently as near as can be judged of the same intensity, there will be three or four treatments where there will be little change in the corneas, and then there will be one treatment where a most marked change can be seen in the clearing of the exudate and the thinning out of the center of the macula where it is most dense.

Three cases of **glaucoma** have been treated. The first is a young woman, who is in training for a nurse. At the beginning of her course she had a perforating ulcer of the cornea from a burn, which afterwards resulted in chronic glaucoma and total loss of vision. The eye since then has been more or less irritable with some ciliary injection and occasional pain, especially after excitement, loss of sleep and fatigue. The pain was so severe during the early part of the winter as to disturb her rest. The rays were used at first every second day, then every third day. At first the treatments were given for ten minutes, then twelve, then later from fifteen to eighteen minutes. After each treatment there is a perceptible diminution of the tension with moderate reaction, as shown by the increased conjunctival congestion with hyperæmia of the lids. This soon passes away and the eye at present is



JULY 7, 1906—JUST BEFORE GOING AROUND THE WORLD.

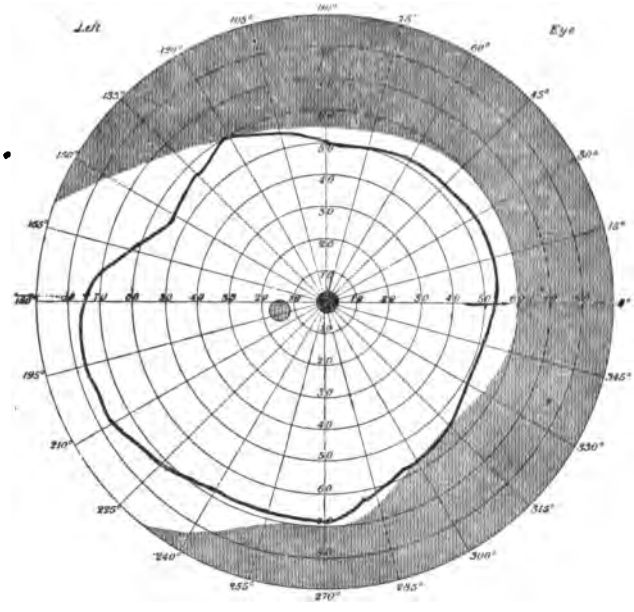


DECEMBER 26, 1906—ABOUT ONE MONTH AFTER HIS RETURN FROM HIS TRIP.

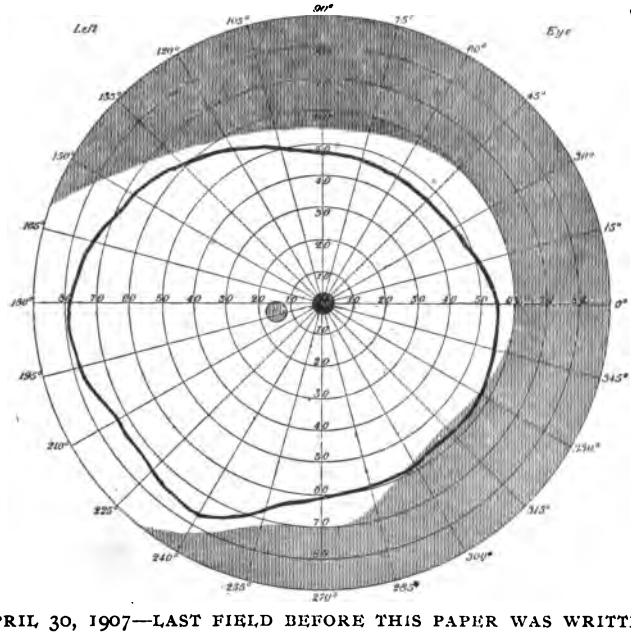
comfortable for several days. Where formerly she was able to use her eyes for only a short time she is now able to do a fair amount of work, and it seems as tho the ball would remain quiescent, tho it looked during the winter as if an iridectomy or an enucleation would be necessary. There is much less congestion than formerly.

The second case of glaucoma treated was a man of about 60 years, having a large amount of myopia, with large and prominent eyeballs, who had, from glaucoma simplex and the atrophy of the optic nerve following, entirely lost the sight of the right eye some years ago. His left eye had been free from glaucoma until last summer, when it came on gradually (he scarcely perceived the loss of vision) accompanied by a number of retinal hæmorrhages about the macula and optic disk. About the time I installed the lamp the vision had been reduced to counting the fingers at three meters. Eserine had been steadily used, and the homœopathic remedy given during the fall, with a decrease in the tension and a very gradual improvement in the retinal hæmorrhages. He was treated at first three times a week for several weeks, then twice a week, and now the treatments are about a week apart. The hæmorrhages entirely disapeared several weeks ago, the pupil has been allowed to dilate in the left eye with no increase in the tension, while in the right there is less irritation than for several years past. Eserin is still used in the right where the tension is slightly plus. The case is still under observation.

Another case of glaucoma simplex is a man who first noticed failing vision late in the winter of 1906. He was watched carefully during that spring and summer, eserin and remedies being used, and the conditions were so favorable that he was allowed tc make a trip around the world during the late summer and early fall, using eserin while away with remedies. The left eye was the only one affected—with moderate plus tension at first—but soon after there was an increase in the right eye. There was an acute attack of glaucoma one night while in Japan and he was treated by an English physician in Tokio, who quieted the inflammation so that he was able to resume his trip the following week and come home in comparative comfort. While in Paris he consulted Landolt, who advised an operation. His fields have been taken once in three or four weeks ever since he was first seen, and have gradually improved. There is no cupping of the disks, and there has been almost no change in the vision until very recently. Early in January, while



JANUARY 31, 1907—AFTER ABOUT ONE MONTH WITH THE LAMP.



APRIL 30, 1907—LAST FIELD BEFORE THIS PAPER WAS WRITTEN.

conditions were quiescent, we had a consultation about an operation, and he asked me if there was any way to avoid it. I told him I did not know what the lamp would do in such a condition as I knew of no recorded experience with it, but if he cared to try it I would experiment with it. At first he was treated twice a week without much change, then for about three weeks three times a week, the treatments lasting at first fourteen minutes, and gradually being increased to twenty, and of late, since the treatments have been twice a week, continued from twenty-three to twenty-five minutes. Since the lamp has been used the field has enlarged some, the tension has remained down but he is still able to see a halo with the left eye, in looking at a dim light. Over a month ago I discontinued the use of eserin in the right eye, but the tension has not since increased. There is still a very slight plus tension in the left. As long as eserin was used the right eye had the best vision. Since stopping the use of eserin the vision has failed slightly in the right eye, altho the field is good and the fundus appears normal. I doubt whether this can be claimed as a successful use of the lamp.

These are the principal eye conditions in which I have tried the effects of the lamp. I have tried it in several cases of **acute middle ear trouble with mastoid** involvement, where the application of the light to the mastoid and ear seemed to very markedly change the condition in a few days. After the acute inflammatory symptoms passed away the light did not seem to affect the tinnitus, if any remained, or to greatly improve the hearing.

In one case where there had been a very profuse suppuration and mastoid involvement for about two weeks when I first saw the case, the temperature then ranging from 101° to 104°, the lamp was tried with relief to the pain, giving the patient sleep at night. For a few days the temperature gradually declined, the sensitiveness and swelling over the mastoid decreased and the case seemed to be progressing, when suddenly the patient had a chill, and an operation had to be done the next day. The mastoid was found to be an exceedingly large one, and the involvement extended so that about ¾ of an inch of the sinus was laid bare and freed from granulations; a local meningitis, which had set in, made it necessary to uncover the dura over a spot nearly as large as a quarter. The glenoid fossa was opened but, after all the pus was removed, the patient made a gradual recovery, although the wound is not yet entirely healed.

While my success with the lamp has not been as marked as some reports have shown it to be in other hands, and none of these cases can be quoted as absolutely due to the lamp, still I believe it is a useful adjuvant, especially in acute inflammatory conditions.

75 Halsey Street.

DISCUSSION.

E. J. BISSELL (Rochester): Phototherapy is rapidly taking its rightful place in what is called physiological therapy. Like all new research work its advantages, dangers and limitations are not yet clearly recorded, and for a time it will suffer at the hands of its over enthusiastic friends. Its action is based on well known scientific facts, and its true therapeutic value will gradually be determined by such clinical papers as Dr. Schenck has presented.

I have the lamp described by the writer, and my experience with it is as follows:

Ear Diseases.—In chronic catarrhal and suppurative states—no benefit. Acute catarrhal and suppurative states—considerable relief of pain; very slight benefit in controlling the inflammation.

I fear that this will be the final conclusion, for the inflammation is too deep to be reached by the chemical rays to any great extent. This is in accord with the experiments of scientists who have shown that as the violet end of the spectrum is approached the penetrability of the rays gradually diminishes, and at the end even a thin layer of blood presents almost a complete barrier.

The claim of the makers of the lamp that the heat rays carry in the chemical rays sufficiently deep to reach the ear is not supported by tests which have been made with photographic plates to learn the actinic power of light after passing thru different depths of living tissue.

Eye Diseases.—In all forms of ulcerations of the cornea and several cases of severe keratitis from trachoma marked benefit has followed the use of the lamp.

In one case of panophthalmitis following the extraction of steel from the vitreous, rapid and permanent benefit followed its use.

In iritis and glaucoma the results from it have been of doubtful benefit.

THE TREATMENT OF AFFECTIONS PECULIAR TO SINGERS AND SPEAKERS.

GEORGE B. RICE, M. D.,

Boston, Mass.

IT has been my good, or sometimes I think ill, fortune to have had a considerable experience in the treatment of affections peculiar to singers and speakers, and I therefore venture to offer a few suggestions.

The problem which frequently confronts us is how to overcome a laryngeal inflammation, or a condition resulting from such an inflammation, when we know the cause to be a bad vocal method, and the patient has been sent by a teacher who is responsible for it.

It might naturally be asked how does the physician know that the method is a bad one, and that the laryngeal lesion is a result? The answer is not easy, for opinions vary greatly as to what exactly constitutes a good vocal method. Every teacher who has had proper preparation is endeavoring to attain certain ends. These are the control of respiration, the proper co-ordination of the vocal muscles, extrinsic and intrinsic, and the adjustment of the relations between the resonant chambers. These constitute the art of voice production. As individuals with voices vary greatly in anatomical and physiological characteristics —that is, in chest capacity, density of muscular fiber, size and relation of resonant cavities—so must the method of bringing about adequate vocal results vary correspondingly. The teacher then, no matter how much he may have achieved in developing his own voice, falls far short in obtaining adequate results and frequently does much damage if he tries to adapt one method of training to every pupil. The best teachers of the vocal art are frequently driven by overwork to routine methods, and so we should not be misled in diagnosis because a pupil has been studying with a teacher of much repute.

In suspected cases of impairment of the voice from improper use, we should first obtain a detailed history of the case. Such questions as these should be asked:

Have you always lived in one section of the country? If not, did your trouble begin with change of climate? Have you always been subject to laryngeal colds, or did these troubles begin with your vocal training? Have you used your voice when your throat was inflamed? Before you began vocal study, how long could you sing without fatigue? Have you tried to practice vocal exercises when you were conscious of much muscular effort, and with increasing hoarseness?

The patient should then be carefully examined for any abnormalities of the upper air passages, and he should be asked to hum a scale in the middle of the voice; the physician at the same time putting one finger on the larynx, and another on the nose over the nasal bones. If the patient is unable to hum an octave softly without laryngeal tension and rigidity, which can be felt with the finger even if the ear does not detect it, we may be sure of a defective vocal method; that defect is further proven if the nasal resonance imparted to the finger is not continuous, or is absent altogether. Now look into the larynx, asking the patient to sing a few notes using an open ah. It will frequently be seen that the vocal bands are convex, and that they come in contact at a certain point at about the juncture of the anterior and middle third, which some authorities call the nodal point. In other patients the vocal bands may adduct in such a way as to leave a concave space, and the edges are only made parallel by extreme muscular effort.

What can we do for such cases? One authority suggests a system of vocal exercises for correcting the difficulties, another advocates rest, others the use of astringents and stimulating applications and internal medicaments.

To my mind the trouble must be overcome by much more radical measures than any of these. We must get at the root of the matter by a frank, tactful talk with the teacher, and obtain his support and co-operation. Then absolute rest must be enjoined, together with such local treatment as is indicated, until every particle of inflammatory disturbance has subsided. Any abnormalities of the nose, nasopharynx and pharynx should be corrected by proper surgical and remedial means; and then vocal instruction should be begun by the teacher, the patient being under the physician's observation from time to time, to note the results, good or harmful.

The first instructions after such vocal difficulties should be fundamental, with no public singing, and very little home practice. At this

juncture the use of vibratory treatment and the interrupted galvanic current, as suggested by Drs. Garrison and King, will be of use, and the most careful attention given to hygienic and dietetic measures. If the conditions above described are neglected, vocal impairment becomes more pronounced, and in the convex type of laryngeal disturbance distinct nodules appear on or about the vocal bands at or near the nodal points. Authorities differ greatly in their explanation of the etiology of the nodes.

Miller, from rather extensive studies of the lower animals, believes that there is a direct relation between pathological changes in the faucial tonsils and the formation of the nodes. Curtis contends that the cause lies in the use of vocal exercises which develop certain muscular fibers and weakens others. Kyle believes that they are "not necessarily due to improper or extreme use of the chords, but may be the result of using the voice when surrounding tissues of the chords are congested from direct or associated laryngeal inflammation, or from the forcible or sudden use of the voice when the parts are hyperæmic from violent exercise. "I have observed," he says, "a number of cases of involvement of the larynx and chords during and following an attack of la grippe, in which I believe the nodular formation was due to localized hæmorrhagic areas with localized spots of inflammation and organization. In many cases not of inflammatory origin, but where sudden or improper stress had been thrown upon the vocal chords, I believe this hæmorrhagic condition explains the process. The fact that a nodule may appear suddenly, regardless of cause, bears out the hæmorrhagic theory. People of a tubercular family history or tubercular tendency seem to be predisposed." Coakley affirms that they accompany chronic hypertrophic laryngitis in those who use their voices in a faulty manner. Watson Williams says of them: "These nodules are the result of improper voice production, and are most commonly seen in sopranos. These wrong methods arise especially in the production of very high notes in the small registers, the posterior two-thirds of the chords being held in apposition and only a small chink left anteriorly; hence the reason for this particular nodal point being subject to constant attrition in sopranos." Lennox Browne believes that singers' nodules rarely occur except in individuals who sing wrongly or excessively.

My observation coincides with that of the majority of observers, namely, that singers' nodes are due to either a faulty vocal method or by

over taxing the voice by too prolonged singing or speaking, particularly when suffering from some pathological condition of the nasal, naso-pharyngeal, or pharyngeal cavities, or from laryngeal inflammation. Kyle's hæmorrhagic theory sounds reasonable, and in one of my cases I believe this hæmorrhagic condition was an important factor in the nodal development.

I have never been able to demonstrate a definite, direct relation between singers' nodes and tonsilar lesion. On several occasions I have removed the tonsils from patients suffering from vocal nodules, and have never observed any marked change for the better until other measures had been adopted. These measures have already been in part described; but in addition, the removal of the nodes by surgical means is sometimes possible. When the node or nodes are situated on the top of the vocal band, and project only slightly beyond the edge, the actual cautery can be used more advantageously than cutting instruments. Great care of course must be exercised to avoid causing so much destruction of tissue that the resulting scar will cause permanent vocal impairment. When it is possible to use cutting forceps, or guillotine, this method is much to be preferred.

The treatment of sudden acute conditions and other emergencies which arise from time to time in the throats of public singers and speakers demands careful consideration. The sudden loss of voice which comes with acute inflammatory conditions on the day of a public performance creates an emergency which is sometimes extremely difficult to meet. If on examination of the larynx, a definite prognosis can be made as to whether or not it would be possible for the patient to use the voice within a certain definite time, then we have accomplished much. But an accurate prognosis is much more difficult to make in patients coming to us for the first time, as individuals vary greatly in their susceptibility to remedial measures and in their natural reactive powers. Sometimes it is possible to determine to some extent the severity of the inflammation and the submucous involvement by spraying the larynx thoroughly with a 1 to 4 solution of adrenalin chloride, 1:1000, and normal salt solution and noting the improvement in the voice. If the improvement is very marked, we may know that the inflammation is superficial and probably easily controlled.

In such cases I prescribe a 20 per cent. solution of argyrol one ounce, and adrenalin chloride one drachm, to be used in a good atomizer with a down tip nozzle, giving very careful instructions as to the method of

application. The patient uses this every two hours, and on alternate hours a nebulizing solution of some soothing oily compound like calenduol or benzoinol and resorcin. The cold pack applied to the throat, with steam inhalations of the tincture of gum benzoin compound, may be serviceable in some cases. When vocal impairment is due to nasal or nasopharyngeal congestion and loss of head resonance, we can reduce the turgescence in those patients who do not suffer from nasal neurotic or vasomotor disturbances by the same means, using a 15 per cent. argyrol solution instead of a 20 per cent. Nitrate of silver solutions have never acted favorably in my cases.

After such inflammatory conditions have subsided it is not unusual to notice marked relaxation of the larynx and soft palate, almost to the extent of paralysis. This sometimes lasts a number of days and even weeks, and is an extremely trying condition. The ordinary speaking voice sounds normal, and it is possible for the patient to use the full speaking or singing voice for a few minutes. The resonant and carrying power are soon lost, however, and further use of the voice becomes impossible. In some of these cases it is impossible to say that there may not be some difficulty with the cricoarytenoid articulation, except that the symptom of pain is usually present in the articular form. In these forms of laryngeal trouble, I believe that vibration and the interrupted galvanic current, before referred to, are extremely helpful. Very light vocal exercises may be used a few minutes at a time, but attempts at forcing the voice while the larynx is relaxed are disastrous.

Other forms of laryngeal disturbances which are not uncommonly met in vocal students are the neurasthenic conditions; the hysterical aphonias, the disturbances of muscular co-ordination, the hyperæsthesia, and so forth. Here the patient needs general treatment to restore exhausted nervous force, such as regulation of sleeping hours, regulation of meals, and freedom from over excitement. But most of them need still more to be treated from the purely mental standpoint. They need encouragement and support, and to have their confidence in the natural recuperative forces stimulated.

With these abnormalities to deal with, we specialists must be more than specialists. We must be physicians in the largest sense of the term. At the large conservatories of music and oratory there are many students who are living away from home for the first time, and unless they are unusually well trained and mentally balanced, fatigue, excite-

ment, and irregular hours of sleep soon pervert the nervous equilibrium. Little can be done to help these patients unless we can win their confidence, and then much can be accomplished. I will not detail the many modified types of these diseases, but I wish to speak of some of the remedies I have found useful in the treatment of these affections.

I have no new remedies to exploit; all of those which I will mention are old. It seems to me that we shall accomplish more by thoroly understanding the well proven remedies than by searching for the newer and less tried ones. I am sure that in my, perhaps rather recent, earnest efforts to use the standard homœopathic remedies with more skill and intelligence, I have often been surprised to see what they will accomplish.

In the acute affections of sudden onset, a close distinction should be made between aconite, belladonna, gelsemium, hyoscyamus, apis, rhus, bryonia and arsenicum, and this properly selected remedy can be quickly followed by iodide of lime, hepar, phosphorus, stannum, ipecac, selected also with equal care. In the nodal conditions thuja, locally and internally, is frequently indicated.

Remedies suitable for the relaxed and strained voice require more careful selection. Among these are graphites, causticum, populus, kali phosphoricum, senega, selenium and argentum nitricum.

In the neurasthenic it is still more difficult to prescribe adequately. It is impossible to give even a few remedies from which to make a list. I have received much aid in the selection of the proper remedy, as I presume have many of you, by a study of the list of remedies for The Vocal Troubles of Singers as given by the late Prof. Ivins in his book on *Diseases of the Nose and Throat,* page 383. Those who do not own the book would be more than repaid for its purchase by this chapter alone.

220 Clarendon Street.

DISCUSSION

IRVING TOWNSEND (New York): We have all observed singers employing quite opposite methods, taught by different instructors, who accomplished the best results artistically without any injury to the vocal organs so far as could be observed. Dr. Rice's tests for determining whether the patient is using a faulty vocal method are interesting and, I believe, practicable at the hands of one who is experienced. I think he

will bear me out in the assertion that voice training is a question of adapting the method to the individual rather than of compelling every singer to conform to a single method. It is not whether he method of breathing be supracostal, infracostal or abdominal, or whether the oro-pharynx, nasopharynx, or postnasal cavity be the resonant chamber, but it is how to give the voice the fullest and freest range with the minimum of muscular and nervous effort. Dr. Rice's suggestion that we secure the co-operation of the vocal teacher is excellent; it is only thus that we can obtain the best results. Music hall singers, longshoremen, hucksters and street fakirs exhibit all the defect observed among vocal artists, in an exaggerated degree; this leads me to believe that habitual overstrain of the laryngeal muscles and use of the voice in the open air or in smoky, ill ventilated rooms is the most potent etiological factor of chronic laryngitis.

SAYER HASBROUCK (Providence, R. I.): Dr. Rice has very clearly considered as far as he goes what used to be called "clergyman's sore throat," but what's in a name?

Without question there is great risk to the pupil who changes his method of voice culture after being fairly wel established in one; I have seen many good voices ruined that I believe might have turned out very satisfactory if they had continued as they started, even tho the fads at the time condemned their method.

The doctor's remarks on a change of climate should be emphasized more forcibly. If a girl come today from the White Mountains and in Boston tomorrow take up the hard work of a conservatory training it is asking too much of her physical and nervous strength. Far better take the extra time necessary to become, as it is said, acclimated and the result would be that she would be able to do her best. I have felt for a long time that a woman should train a woman and a man a man in the development of voice culture. Say what you will about the fact that both have been theoretically trained the same it is impossible for them to accomplish the same results, and as the pupil makes every effort to imitate the instructor I believe a woman's work under a man is very apt to do her voice harm.

In speaking of the treatment of acute and chronic laryngitis one's wits first of all must not fail him. On the other hand, I wish to suggest that no one will make a mistake in following the advice as laid down in Kyle's most admirable book; if you are not already familiar with it become so as soon as possible. Frequently it seems absolutely necessary for us to do all we can to relieve temporarily an acute attack of laryngitis. I have tried everything, I believe, but the following method has given me the best results and is worthy of your consideration:

First insist on absolute rest, then give five or ten drops of dilute nitric acid in water, taken every half hour for a few times and then every hour or two if there is evidence of relief. At the same time pack the neck with cold water, use inhalations of any of the balsams,—

benzoin being one of the best,—in the form of moist vapor. It is safe to say that all of us have suffered from laryngitis of some kind. Is there not some fundamental physiological reason that makes us thus susceptible?

The ideal man or woman is one who is well sexed, as we understand the term. This means one who is lovable. But what is love but sexuality, the source of all that is good or bad in man? What has this to do with laryngitis? We will see. The singer and public speaker, if a success, must be sympathetic, emotional, combined with a personal magnetism, endowed with ambition and anticipation of future success; qualities that make them susceptible to the admiration and praise prompted by the gallantry engendered by popularity. This combined with the environment of public life surely, as we know, tends to stimulate one's sexuality; and is this not a sufficient excuse to consider this side of the subject? Those whom we recognize as sexually deficient surely show it in their speech. At puberty it is well known that the boy's voice changes, and castration has long been practiced upon the choir boys to preserve their soprano voices. I have known many a girl who before puberty could not sing developed a fine voice afterwards. Who is there who cannot remember many a woman that becomes hoarse and seems to have a cold at each menstrual period? And there are some who are hardly able to speak. I have reason to believe that our best singers will not sing at that time. It is well known that the menopause has a marked influence upon the character if not the tone of the voice. Operations upon the genital tract most certainly have a marked effect in changing the voice; I have known the mere passing of a sound upon the male to make him hoarse for the rest of the day. I once knew a woman of the town with a highly passionate nature that when business was good could hardly speak above a whisper but after a few days of rest and quiet she could sing finely. Mackenzie has most graphically told us of the nervous reflex influence that sexual excitement has upon the nasal mucous membrane, and there are those who claim that excessive indulgence in this way is a prime cause of nasal hypertrophy or of atrophy, and even if not a cause of ozena it is a source of aggravation. I have known cohabitation to cause one to cough, became hoarse, and in one case cause each time a most distressing spasmodic contraction of the larynx. The poets sing of the cooing voice of lovers. We all know how frequently an acute laryngitis can be traced to balls and social gatherings of the sexes where, even tho not immoral, still it is recognized that there is always a sympathetic mutual feeling on the border line of sexuality in many cases if not in too many. Allowing all this to be true, what must be the reflex influence of excessive sexual irritation, masturbation and the many degenerate methods of sexual excitement.

If I have not discussed the subject matter of Dr. Rice's paper, I have brought forward a most important factor worthy of consideration

in connection with the cause of acute laryngitis and, more important than all, one of the reasons for its chronicity.

Should not our treatment be governed by a consideration of these facts? With a better understanding of this subject its prophylactc value cannot be over estimated. This can only be accomplished by educating the people to an intelligent familiarity with this most important question of the day. Let it be so explained and discussed that its mention will not cause the most sensitive person to blush. The doctor first of all who more fully than anyone understands this subject should without fear of criticism do his duty. For many years I have believed that the Bible was written as a guide to our sexual life, but its expounders usually take great care to cut out as far as possible all mention of the subject; now I believe the time has come when the teachers of the Gospel should reread their Bible and assume the responsibility that it so clearly lays down. False pride in the home should become a thing of the past. Let the father and mother educate themselves and then their children; the world will be better for it and children will receive a better birthright. Acute and chronic laryngitis will have a less fertile soil for its development, and hand in hand with sanitary science, the unfortunate microbe of disease will have to die a natural death of its own.

THE VALUE OF SKIAGRAPHS IN THE DIAGNOSIS AND TREATMENT OF DISEASES OF THE ACCESSORY SINUSES OF THE NOSE.

C. G. COAKLEY, M. D.,

New York.

TO Prof. Gustav Killian, of Freiburg, Germany, we are indebted for one of the most useful applications of the X-ray in surgery.

In a recent article (Ueber die Verwendung der X-Strahlen fuer Bestimmung der nasalen Nebenhohlen und ihrer Erkrankungen. Goldmann und Killian; *Beitrage zur klinischen Chirurgie,* 54 Band, 1. Heft) Killian attributes to Prof. Haegler, of Basel, the opportunity of seeing an X-ray picture in which the outlines of the frontal sinuses and antra were beautifully shown. At Prof. Goldmann's clinic in the Diakonissenhaus there is an excellent X-ray plant. Prof. Killian supplied the sinus cases from his clinic, and plates were taken at Goldmann's clinic. They read a paper on this subject in the South German Laryngological Congress, at Heidelberg, in 1904. In the latter part of August of that year my friend Dr. Ard visited Prof. Killian's clinic and brought home with him a skiagraph of his own sinuses, together with a plate showing disease of one frontal sinus. Dr. Ard kindly showed these plates to me, and later to Dr. E. W. Caldwell, Director of the Gibbs X-ray Laboratory at the University and Bellevue Hospital Medical College. Immediately Dr. Caldwell proceeded to X-ray such patients as were sent to him from my throat clinic at the college. To Dr. Caldwell's exceptional technical ability we are indebted today for the instructive plates which I am about to show. My part in the work has been that of furnishing patients, both clinical and private, and interpreting the skiagraphs.

For purposes of diagnosis two things are necessary: 1st, a good plate, 2d, ability to read or interpret it. For the taking of a good plate an excellent outfit is required and considerable actual experience with cases.

In the opinion of Dr. Caldwell there is no part of the body so difficult

to skiagraph as that of the accessory sinuses of the head. Skilled Roentgenologists need not be surprised, therefore, if their early attempts do not produce as satisfactory negatives as are desired. Our first negatives barely showed the outlines of the sinuses, and would be considered practically useless in the present state of greater perfection.

On his recent visit to this country, Prof. Killian acknowledged the superiority of Dr. Caldwell's plates over those taken for him at Freiberg, and took home one of our plates that they might improve their technique.

Second. The interpretation of a plate is not always easy. In the earlier plates many things were seen which I could not interpret. Even now, after a study of about three hundred plates, I sometimes meet with an appearance which it is impossible to interpret until after the operation on the patient has been concluded and then by consulting the skiagraph the reading is made clear. The knowledge to be derived from a good skiagraph of the sinuses is so valuable, not only for purposes of diagnosis but even for indicating the proper operative treatment, that I consider it *absolutely necessary* for every chronic sinus case coming under my care to have a skiagraph made.

In previous communications, the last at the meeting of the British Medical Association at Toronto, in August, 1906, I gave my opinion as to the value of the skiagraph in diseases of the accessory sinuses, and a rich experience in the past year has confirmed my previous views.

THE FRONTAL SINUS.

(A) **Certainty of demonstrating the presence or absence of a sinus before operation.** A good negative will show the presence or absence of a frontal sinus. I have plates in which the frontal sinuses do not project above the orbital arches; in the case of children the small size of the sinuses can be shown. The frontal sinuses are mainly shown budding out from the upper region of the ethmoidal area as they are known to develop embryologically. I have plates which show a good-sized, well developed frontal sinus on one side and absence of the sinus on the other.

(B) **Accurate determination of size of the sinus.** We have found that the frontal sinuses have not in any of our operative cases appreciatively varied from the height and width as measured in the skiagraph. It

would be comparatively easy to get distortion were it not for the fact that the plate rests directly on the forehead. In other words, if the ray is made to enter above the occiput, the height of the sinuses will be different in the two skiagraphs owing to the difference in the projection of the sinus above and below the level of the occiput. This portion of Dr. Caldwell's apparatus has been very conveniently arranged so as to have a constant angle of projection for the sinuses.

(C) **Situation of the septum between the two frontal sinuses.** The septum between the two sinuses can usually easily be seen. It is seldom situated absolutely in the median line, but often bent to one or the other side, as we know from experience on the cadaver. One is very apt to mistake the projection forward of the spine of the ethmoid and the line of junction of the interfrontal suture for a median septum, unless the plate is carefully studied.

(D) **Location of parietal septa.** Partial septa in the frontal sinuses are very plainly shown in a good plate, always more plainly seen in a healthy sinus than in a diseased one.

(E) **Probable presence of an orbital recess.** Whenever in a good skiagraph a dark slightly curved horizontal area, almost parallel with the upper border of the orbital arch, is seen, we have found that such patients have had a recess extending backwards over the roof of the orbit to a greater or less extent. This finding has been so constant that I feel quite sure that such an area can be relied upon as indicating a backward orbital projection of the frontal sinus.

(F) **Disease determined by an excellent negative.** In our earlier plates, as the negatives obtained became more clear and distinct, I noticed that there was invariably a cloudiness over the area occupied by a diseased frontal sinus as compared with that of a healthy sinus. This of course could be more easily observed where one sinus alone was involved than where bilateral frontal sinusitis existed. This occurrence was so constant that over two years ago I made the statement that I believed in some cases we could use skiagraphy for diagnosing the pathological conditions as well as the form of the sinus.

In the fall of 1905 I asked my friend and associate, Dr. Chisholm, to undertake a series of experiments to determine, if possible, the cause of the cloudiness in a diseased frontal sinus. These experiments upon the cadaver showed that any fluid injected into a frontal sinus caused a shadow, and that membranes containing moisture caused a marked

shadow as compared with the same membrane when dry. As a result of his experiments there can be no doubt that the shadow in the skiagraphs is the combined result of the thickened mucous membrane and any fluid which may be present in the cavity at the time the exposure is made. Of course one must be careful to exclude any possibility of fogging in the plate, for the appearance of an affected frontal sinus is not unlike that of fogging.

On several occasions when it was impossible to be positive as to the extent of frontal sinusitis from any examination which I could make, the cloudiness over the affected frontal sinus induced me to make a diagnosis of frontal sinusitis. Two cases were operated upon; in one the cavity, only moderately large, was filled with thick mucus without any increase whatever in the thickness of the mucosa. In the other just the opposite was found—namely, marked edematous infiltration of the mucosa with only a few drops of secretion in an enormously large frontal sinus.

(G) From information obtained from the above determining in advance the best method of operating—feeling as I do that no one method of operation will eventually be found to be most serviceable in the treatment of all sizes of frontal sinuses—we have in the X-ray a very great aid in determining in advance the type of operation which is best suited to the indiivdual case.

ETHMOIDAL CELLS.

The width of the ethmoidal cell area—that is, the space between the nose and the orbit—is easily demonstrated. This is of very great help, especially when one operates upon these ethmoidal cells intranasally. I have been very much intersted in noticing how narrow the ethmoidal area is in some patients and how very wide it is in others. The heights of the ethmoidal cell area is also well shown, and the relations of some of the ethmoidal cells to the frontal sinus easily demonstrated. It is not uncommon to find some cells in the ethmoidal region cloudy, and others clear, showing absence of disease. Some of my plates also have shown a line of cloudiness extending from the frontal through some or all of the ethmoidal cells and continuous with the cloudiness involving the antrum. In two such cases intranasal operations on the antrum failed to relieve the suppuration until the frontal sinus and ethmoidal cells were opened externally, after which the antrum ceased discharging.

MAXILLARY SINUS.

A diseased maxillary sinus will in a good negative have the same cloudy appearance as do the frontal and ethmoidal sinuses. I do not believe that one would ever employ skiagraph for a maxillary sinus alone, unless it were to determine the presence of a foreign body or a partially extracted root of a tooth as the existing cause of the continued suppuration in the antrum. Such a foreign body can easily be located by a skiagraph.

SPHENOIDAL SINUS.

A side view of a sphenoidal sinus often enables us to determine whether a large or a small sinus is present. I have been unable to obtain any greater information than this as to the sphenoidal sinus. The central situation of this sinus, and the varying superimposed bony structures thru which the rays have to pass make me skeptical as to whether a diseased condition of this sinus can be determined in this way. Certainly a study of my plates does not warrant me in venturing an opinion on the pathological condition of the sphenoidal sinus.

In taking a skiagraph, the film surface should be laid towards the face, the film resting against the forehead; this makes the right side of the skiagraph correspond to the right side of the head, and this is of advantage in interpreting results. Unless you pay attention to this you get the sides reversed, which is more or less confusing. The first thing to look for in a skiagraph is the orbits; these stand out plainly, even in a poor plate, and give a landmark for the relative position of other parts; these are circular bodies. Between the orbits you see a space occupied by the ethmoidal area, it extends to this point (pointing) over the upper fourth of the orbit. It looks a little darker or cloudier than the rest, owing to the projection of the nasal bones. As you go laterally you come to the big ethmoidal cells, which show clear distinct areas. In a perfectly normal skull the ethmoidal cells are darker than the orbit.

I judge a plate much from that area. When you see that dark distinct area in the middle it shows a normal condition, you have no ethmoidal disease. A skiagraph may appear as if the antrum was diseased;

as to this, much depends on the proper position of the head in relation to the rays. If they enter too low there will be an appearance of disease owing to the projection of the bones at the base of the skull. The septum, inferior turbinated bodies and the outlines of the nasal cavities may be distingunished, and the projection forward of the petrous portion of the temporal bone forms a quadrate area.

Plate 2.* This is a lateral view of the same individual, and is a very beautiful projection; it shows well the orbital cavity and the frontal sinuses. These dark things are fillings in the teeth and the false teeth. We can also see the ethmoidal labyrinth and the shadow made by the sella turcica. Below the sella is the shadow of the sphenoid. This is the only plate that I ever saw in which the sphenoid shows differently from the ethmoidal cells; it was in a diseased state and it is the only plate that shows the sphenoid at all. This sphenoid held about one and a half ounces of pus, and was the deepest and widest sphenoid I ever saw.

Plate 3 is a normal specimen, at least I hope it is, for it is my own head. The septum passes up between the two sinuses, the cavity on this side is triangular while on the other it is quadrilateral. My right frontal sinus is more capacious than the left. On the other side, however, it is very much higher. You probably would not recognize this area as the ethmoidal cells, it extends far in this direction. This knowledge would be important in case of operation for ethmoiditis. Sometimes there might be a fear that you were liable to enter the cranial cavity, but with this as a guide you would open it without fear. The petrous portion of the temporal bone makes this shadow; my antra do not illuminate very clearly because the bones are thick.

Plate 4 is exhibited simply to show what a poor plate means. It is absolutely useless except to show the presence or absence of the frontal sinus; it shows nothing else with clearness.

Plate 5. A perfectly normal frontal sinus. The right frontal sinus is enormous in size, the outlines are very distinct; the ethmoidal cells are diseased; the petrous portions of the temporals are thrown into line with the nasal cavities.

Plate 6. The right frontal sinus is very small, the septum turns to the right and the left sinus is above the average in size. This patient

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*Unfortunately these fine distinctions cannot be shown by presswork.—EDITOR.

has acute sinus trouble last January; I washed out the right antrum and treated it. By May the right antrum was still dark, I again washed it out and got out a small plug of mucus; then the skiagraph came out clear.

Plate 7 is a transverse view of the same case.

I now will show some of the experimental work of Dr. Chisholm. Skiagraphs of tubes containing, respectively, gelatin solution, pus, blood, normal salt solution, water and air. Exposures were one second and two seconds.

Plate 8 shows the next experiment, a portion of the intestinal mucous membrane in one thickness and in two thicknesses and four thicknesses; he also put it in an oven and dried it before skiagraphing it.

Plate 9 is the head of a cadaver. The dead subject always gives a clearer skiagraph than the living body.

Plate 10 shows a case of unilateral sinus disease. The whole of the right side is diseased, the ethmoidal, the antrum and the frontal sinus are all inflamed. The frontal sinuses on both sides are involved. The partial septum runs down this way. The nasal mucous membrane is thickened and hypertrophied. The patient could not breathe through the nose. The orbital areas are shown here, the petrous portion comes in here and leaves the antrum clear below.

Plates 12, 13, 14, 15 were all examples of unilateral diseases of the sinuses.

Plate 16. This is an interesting plate, the septum runs down here and then off in this direction; in spite of knowing that I got thru the frontal while chiselling on this side. It was a pretty bad case, suffiering with intense headache. He had a very deep sinus and there was, on that account, considerable deformity afterwards. It was sewed up immediately.

Plate 17. In this case the right frontal was dark, did not illuminate; it would not have illuminated very well even if perfectly well because it is so small. The skiagraph makes it plain that there was an acute process going on in the right frontal.

Plate 21. This is the only case of the kind that I have ever seen. The patient had all the signs of sinus disease; there were terrific headaches and discharges from the nose. The case had been under the hands of the best men and had been operated on. There was not much relief from the operation, but after the operation the discharge came

from the opening made by the surgeon. There was nothing in her nose. the ethmoids seemed clear. The results of transillumination were not so good on one side as on the other. The skiagraph shows the right side to be much larger than the left and yet it did not illuminate satisfactorily. On these data, namely, that altho larger it did not illuminate so well, I opened it and found the cavity filled with a thick mucoid secretion and not a bit of thickening of the mucous membrane, that was as thin as paper. This shows that a fluid of that kind will obstruct rays of light just as well as dense structures such as mucous membrane.

Plate 22. The right sinus is small in this plate and the left extends quite a distance to this point.

Plate 23. This is an interesting case. Where is the septum? All this region on the right side is one sinus—it is diseased. The left sinus is small and is not diseased at all. The septum is very inconspicuous.

A VOICE: Does the thickened mucous membrane look different from a purulent collection?

DR. COAKLEY: No. it does not show any difference between the two. When bilateral disease exists the greatest care is necessary in interpreting the results, for then you do not have the normal side with which to contrast it. Much experience is necessary.

Plate 24. This patient, aged nineteen, had pus in every cavity in her head; every sinus was diseased. The nose was almost filled full with polypi; she had had them taken out of her nose every week for the last three years. There was an area here and one here, the outlines of the sinus reach up to this point. I made an incision over the supraorbital notch down to the side of the nose and one down thru the ethmoid. She made a perfect recovery; I think that this is going to be the best method of operating for extensive sinus disease; it does away with all scars on the forehead. With the aid of the skiagraph we are going to be able to go thru the ethmoids, take up the floor of the antrum and let it downwards [?].

Plate 26. This is a case of acute antrum trouble. It was opened widely so as to establish good drainage, but it would not get well, the discharge kept on; finally I saw a little pus under the middle turbinated body, so had a skiagraph taken. The frontal sinus was badly diseased, you can scarcely make out its outline. There was no frontal sinus on the right side.

Plate 27. Another case of one sinus only.

Plate 28 shows an interesting case and a poor plate. There is a general cloudiness all over the plate, it does not show much detail, but it is good enough to show the necessity of an operation. There was considerable swelling over the left frontal arch. The patient had been in the hands of the best men; at no time was any secretion found in the nose; there was no history of a discharge, nothing to go on except the terrific pain. It looked as if it might be periostitis. I transilluminated but, owing to thick bones, the result was not satisfactory. I washed out the right antrum but found no discharge. I had a skiagraph taken, and found the frontal sinus on one side enormous; it was opened and found filled with pus.

Plate 29. This is from a boy of fourteen with the right frontal sinus well developed; all this region (pointing) is absolutely cloudy, the septum is deflected.

Plate 30 is a transverse view of the same case.

Plate 34. This plate shows a rubber drainage tube in the antrum, and that it is not doing a bit of good because the end is elevated above the floor.

Plate 40. This is not a sinus case at all. It was a boy suffering with a terrific headache and paralysis of the third nerve. He had various paralyses, and the question was whether he had an abscess or tumor on the brain, or not, and if so where it was. His temperature was 101°. He finally got a staggering gait. The skiagraph showed a growth, a glioma, in the posterior fossa.

I believe that the brain surgeons could get more help from skiagraphs than they do if some of them would take the subject up and make a study of it. They could learn to locate brain abscesses just as we do collections of pus in the sinuses.

TREATMENT OF DISEASES OF THE MAXILLARY SINUS.

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THE antrum of Highmore being the largest and most vulnerable to disease, as well as most accessible of all the so-called nasal accessory sinuses, it very properly affords a distinctive field for consideration. It is not my purpose to burden you with a detailed description of the anatomy or the various steps in the evolutionary process by which our present knowledge of its surgical treatment has been acquired.

It is my belief that we should lay the foundation for a sensibly conservative plan of treatment by differentiating the more common pathological conditions found in this cavity, and which are roughly classified as maxillary sinusitis, altho any attempt at a definite classification along etiological and pathological lines must be to some extent arbitrary, owing to the fact that each may represent a stage or variation of what was originally a simple inflammation. Thus we find an acute catarrhal sinusitis undergoing resolution and gradually approximating the healthy state, and again running into a subacute or chronic catarrhal form or even going on to suppuration. The purulent inflammation may likewise be due to an acute infection and exhibit a marked tendency to recovery. On the other hand, we find many cases in which there is no history of an acute attack, and where the disease began as an empyema or where the collection of pus was simply incidental to a hypertrophic inflammation or polypoid degeneration of the lining mucous membrane.

The opinion prevails among rhinologists that sinus disease, and particularly that of the antrum, is much more common than our records lead us to believe. The reports of autopsies confirm this view, altho taken by themselves they can hardly be regarded as conclusive. E. Oppikofer (*Archiv fuer Laryngologie*), as a result of the study of two hundred dissections of the nose, arrives at the following interesting conclusions: "Inflammations of the accessory sinuses were found in ninety-four out of two hundred cases; at times catarrh and other suppurative

empyema was present, in about every fourth case, but it was not possible to make a sharp distinction between catarrh and suppuration." "The inflammatory alterations in the accessory sinuses are usually of slight extent. They represent acute terminal affections, and have arisen under the influence of the prostrating general disease. They are found in cases of infectious diseases, including tuberculosis, but not more frequently than in other diseases of a slower course." "When examination shows suppuration of a sinus, it is not usually possible to determine absolutely whether this is acute or chronic. We must seek the aid of the history and examination made during life." "Since inflammations found in the cadaver are usually acute, it is not right to compare without further consideration the results of the autopsy with clinical material, since the latter rests chiefly upon operative cases, which are usually chronic.." "In this series the antrum was found to be most frequently diseased (thirty-eight per cent. of the cases); then follow the ethmoid in eighteen per cent., the sphenoid in nine and one-half per cent., and the frontal sinus in seven and one-half per cent."

The treatment of a maxillary sinusitis depends to some extent upon the cause, and for this reason all pathological processes about the roots of the teeth must be carefully investigated and removed. The authorities differ widely as to the relative proportions of cases having their origin in the teeth and nose, but it is reasonable to believe that the majority are not of dental origin.

Mahu* endorses Lermoyez's view "that maxillary sinusitis and empyema should be kept distinct, and calls attention to the fact that in none of his dental cases were found granulations or fungosities (so-called pyogenic membrane) on the sinus walls, such as exist in true chronic sinusitis. He also calls attention to the resistance of the sinus mucosa to pus of dental origin." This accounts for the fact that many cases of dental origin may be successfully treated by simply washing out the antrum for a short time thru a small opening in the tooth socket or, if the tooth can be preserved, thru the canine fossa. Another class of cases where the antrum becomes secondarily affected by the pus which gravitates into it from the other sinuses is amenable to equally simple operative treatment.

For practical purposes antral disease may be classified under the following headings:

**Annale's des Mals de l'Oreille*, Aug., 1905.

Acute sinusitis, catarrhal, suppurative.

Chronic sinusitis, catarrhal, suppurative, polypoid.

Chronic empyema, from dental origin, drainage infection.

In the treatment of acute inflammations of the antral mucous membrane a conservative policy is the wisest and best. Not that this should be left entirely to the vis medicatrix naturæ, but our efforts should be directed to treatment of the nose, by which the ventilation and drainage of the cavity will be facilitated. When the swelling involves the external parts it is my custom to apply an antiphlogistine poultice and to insert in the middle meatus pledgets of cotton saturated with a mild solution of adrenalin and cocain. After these have been in place long enough to produce a marked detergent effect, inhalations of steam medicated with menthol or camphor usually afford considerable relief.

The nasal douche is not devoid of danger, but if due care be exercised in first applying the adrenalin solution and then wiping out the secretion with pledgets of cotton on a probe, the danger of carrying the infection to new foci in the Eustachian tube or some of the other accessory sinuses is reduced to the minimum. Of course, it is understood that the patient is warned not to gag, swallow or blow the nose during or immediately after the use of the douche. For this purpose I use a douche bag or large barrel syringe with a nasal canula having numerous fine perforations on the sides thru which fine jets of hot normal salt solution are brought in contact with the interior of the nasal passages continuously for several minutes and repeated three or four times a day. These directions may seem trite and primitive when contrasted with the brilliant operative work employed in this location, but if faithfully carried out have—in my experience—often been the means of rendering the latter unnecessary.

If free drainage and some relief from the pain and swelling should not be obtained in forty-eight hours paracentesis may have to be resorted to, particularly if the tension be great. This may be accomplished by puncturing the antrum with a curved trocar thru the inferior meatus, where the naso-antral wall is thinnest, usually about an inch back from the nasal opening. A warm salt solution is used for irrigation, and in some acute cases one application may suffice, but in others where the discharge persists it may have to be repeated several times. A temporary opening thru the naso-antral wall at the lowest point may be advisable, in order to facilitate the cleansing. It is some-

times possible to irrigate the antrum thru the natural opening, but in the presence of an acute inflammation it is seldom practicable.

Menthol and albolene, or sabalol and albolene, or calendula may be used with benefit, applied to the nares by a glass dropper in preference to an atomizer as the impact of a spray is apt to irritate the inflamed membrane.

Constitutional treatment is important and consists mainly in the use of such remedies as aconite, belladonna and gelsemium, according to individual indications. It is occasionally well to begin the treatment with a dose of calomel followed by a saline. The coal tar products are to be avoided, as a rule, as they (like morphine) serve to conceal the progress of the disease and mask the pressure symptoms which are important. After the subsidence of the acute inflammation, it is important to correct any nasal condition interfering with proper drainage of the antrum.

Chronic empyema and chronic suppurative sinusitis are still used by many authors as synonymous terms, but we all recognize a class of cases to which the former is particularly applicable, viz., those cases arising from dental caries and alveolar abscess, and those in which the antrum becomes simply a reservoir for pus which gravitates downward thru the ostium maxillare from the ethmoid cells or frontal sinus; the walls of the antrum exhibit no particular evidence of disease. In these cases the first steps are naturally to remove the diseased tooth, or sinus as the case may be, and provide drainage thru the alveolar process or antro-nasal wall when necessary or, as is sometimes practicable, to irrigate the antrum thru the natural opening.

In considering the treatment of chronic suppurative sinusitis we have to distingunish between cases varying within rather wide limits, including those in which the diseased condition of the membrane is quite superficial, where drainage and irrigation is all that is needed to restore the lining membrane to a healthy state; secondly—those in which there are marked hypertrophic changes in the mucosa; thirdly—those in which the membrane has undergone degenerative changes of a polypoid nature, perhaps to the extent of involving the periosteum and underlying bone.

As these cases are all operative, it becomes a question of adapting the most conservative measures suitable for each individual case. No one can gainsay the wisdom of this principle. but how is it to be ap-

plied? That is not always so easy to determine. The chronicity of an existing sinusitis can be judged only by the history of the case, and is therefore not wholly reliable. The patient may mislead you into mistaking for a recent case what is in reality a recrudescence of a long standing latent inflammation of the sinus, or—vice versa—into taking to be chronic what is in fact recent, because the patient confuses the present symptoms with those of ordinary acute rhinitis from which he has suffered in the past.

The state of the interior of the cavity as a guide to the choice of operative method is only available to a limited extent, as, for instance, in differentiating between a simple empyema without thickening and a chronic sinusitis where the capacity of the cavity has been diminished by hypertrophy and polypoid degeneration of the lining membrane. If the capacity of the antrum is greater than 2 c.c., it is regarded as empyema, and if less as true sinusitis (Mahu's sign). As the capacity of the healthy antrum is so variable, this has never seemed to me of much diagnostic value. Guisez's sign depends on the fact that after evacuating the cavity, transillumination shows the shadow remaining in sinusitis, while in empyema it disappears. Having assured ourselves with some degree of certainty that we are dealing with a true sinusitis, how are we to proceed?

While many advocate the radical operations of Jansen or Caldwell-Luc, there are strong reasons in my opinion for beginning the treatment in all cases by the intranasal route, viz., thru the antronasal wall. This was first proposed by Miculicz* nearly twenty years ago, but owing to the small opening made it did not prove successful at that time. Recently it has been revived by Rethi (*Wiener Klinische Wochenschrift,* No. 34, 1904), Claoue (*Semaine Medical,* Oct 15, 1902) and by Freer (*The Laryngoscope,* May, 1905), Myles, Curtis, Richards and others in this country.

The technique is simple; beginning with the resection of the anterior half of the inferior turbinal and the removal of a portion of the antronasal wall from the attachment of the turbinal down to the floor of the antrum, making an opening from two-thirds of an inch to an inch long and large enough to admit the little finger. The advantages of this method are obvious; not the least of them is the avoidance of an offen-

**Lagenbeck's Archives,* Vol. 34, 1887.

sive discharge into the mouth, and perfect drainage without the use of a tube. It has the further merit of establishing a permanent opening between two cavities naturally communicating, at a point near the floor of each where drainage and cleansing may be most readily carried out. Packing and local medication can be applied without difficulty thru the opening in the antronasal wall if the space be large enough for free access to the cavity, an essential to success in this operation While it will sometimes be found advisable to complete the operation thru the canine fossa, there need be no time lost in doing so if the bone should be found diseased or the sinus the seat of extensive polypoid degeneration. In these latter conditions the radical operation will usually be necessary, but I believe that a large majority of cases of chronic suppurative sinusitis will yield to the milder measures. Richards states that "if the condition does not improve in a reasonable length of time by this method, any nasal operation alone will not be sufficient, and nothing less than the radical operation thru the canine fossa will bring about a cure.

The technique of the radical operation is familiar to you all and need not be described, except to call attention to its salient features, viz., removal of as much as possible of the antral wall, so that every portion of the cavity can be inspected; after this the walls are completely denuded of their mucous lining preparatory to obliteration of the sinus. Local applications of argyrol, twenty to fifty per cent.. are very useful in keeping the sinus clean and limiting suppuration. Nitrate of silver and carbolic acid aid in keeping down exuberant granulations, but it must be borne in mind that a good-sized opening, providing free and unobstructed drainage, is the sine qua non to success in the treatment of sinus suppuration.

62 W. 51st Street.

DISCUSSION.

A. WORRALL PALMER (New York): It is probably a matter of individual opinion, but I prefer the Caldwell-Luc rather than the intranasal operation. The antrum is plainly not intended by nature to be ventilated nor entered by cool air or dust, because its opening is so small; in the intranasal operation it is often necessary to remove the anterior part of the inferior turbinal and this allows dust and cold air an opportunity to enter the antrum which (as I say) was not intended

by nature, and is liable to make trouble. For these reasons I prefer the Caldwell-Luc operation. The opening in the mouth will heal up very rapidly, especially if a few stitches are taken in the buccal mucous membrane over the canine fossa.

A VOICE: Where is the opening made in that operation?

DR. PALMER: The opening is made into the antrum thru the canine fossa and then into the inferior meatus. In this way you do not disturb the turbinal and the opening between the two fossæ is covered.

C. E. TEETS (New York): Of late I have been removing a portion of the inferior turbinal and making an opening with a gouge and mallet thru the wall of the antrum; this I enlarge with forceps and in all cases the results have been very satisfactory. The after treatment consisted of cleansing out the cavity by means of a syringe. A preparation that has given me satisfaction is argyrol 25 or 50 per cent.

H. W. HOYT (Rochester): There is one thing of which I am firmly convinced, that is, if a patient gives a history of having had an attack of acute sinusitis it is wise, on general principles, to remove the anterior portion of the middle turbinal as a preventive against future attacks, even if the parts seem fairly normal. In regard to making a prognosis, so long as we find a chrome-yellow discharge, we may feel quite confident of a cure without any marked surgical interference; as soon as the discharge becomes creamy, we will no doubt have to resort to some form of radical operation in order to effect a cure.

DR. TOWNSEND: I have nothing to add to the discussion, but I would like to ask Dr. Palmer if he carries out his operation to the extent of obliterating the antrum?

DR. PALMER: The Caldwell-Luc operation is to make the opening into the antrum thru the canine fossa and then to get into the inferior meatus, which is one-quarter of an inch below. In some cases it might be necessary to remove the whole lateral wall, but there is no obliterating of the antrum.

DR TOWNSEND: Richardson makes the Caldwell-Luc operation by removing the whole anterior wall and obliterating the antrum.

DR. PALMER: That is Richardson's modification of the Caldwell-Luc operation.

THE IDEAL INTRANASAL DRESSING.

E. W. BEEBE, M. D.,

Milwaukee, Wis.

AMONG the unpleasant accompaniments of rhinological surgery are the troublesome hæmorrhage and mucous dripping, which are the usual attendants of intranasal work. The dressing therefore which prevents or minimizes these troublesome features, and is conducive to the healing process without causing suffering or uncomfortable feelings to the patient, may be said to be the ideal one.

Experience has proved that packing the nasal cavity with plain or medicated gauze, which must remain in close contact with the highly sensitive membrane for several days, is very undesirable and most uncomfortable to the patient. It may prevent hæmorrhage to a certain extent. but it only does so (probably) by reason of its ability to hold the blood clot in place, and the rough edges and folds of the packed strips which are forced into the raw tissues by the pressure of the moistened gauze, impede and interfere with the healing process, and when withdrawn leave an irregular surface which is conducive to hæmorrhage; this is very likely to occur on its removal—in some instances of such severity as to require repacking.

After experimenting with a variety of dressings which have been suggested from time to time, and finding most of them lacking in one or more important features, I began about a year since the use of soft rubber coverings for Simpson's intranasal tampons. and have found the combination very desirable for most operations in the nasal cavity. I do not claim to be the discoverer of the dressing, as most operators I believe are familiar with the rubber tissue packings in one form or another, but possibly some may not have used the rubber in the manner I have found it of most value, and therefore I present it for your consideration. The combination apparently possesses the essentials necessary for the prevention of hæmorrhage and infection, is easy of

application, not uncomfortable when in place, and loss of blood or pain on removal is the exception, after it has served its purpose.

For an open wound dressing, such as that where a portion of the trubinals have been removed, antiseptic powders may be used to dust over the surface, but they are not essential as a preventive of infection, as the application of the rubber is quite sufficient to effectually seal the open vessels and allow cicatrization to go on uninterruptedly in the denuded or abraded surfaces.

The plain tampons of Bernay's sponge are open to the same objection as that of the gauze dressing, but when used as above suggested, and the necessary precautions taken to adjust dressings of the proper thickness to be only comfortable. it is the ideal one for the nasal cavities, and when the wound is properly dressed it need not be disturbed for several days if necessary. This, I need not say, cannot be done with safety with gauze packing or with the tampon in its usual form by reason of possibility of infection. If the dressing should prove to be uncomfortable, from being too thick, a portion of the sponge may be removed with a narrow pair of forceps without disturbing the security of it in the least, which of itself is a great desideratum because this cannot be done with any other packing known to the writer.

The method found most desirable is the employment of dental rubber about one-half millimeter in thickness, which compares with that used in the manufacture of surgical gloves and which is sufficiently thick to make a smooth surface when in contact with the wound, and elastic enough to conform in shape to portions of the cavity which are not acted upon by the expansion of the tampon, the object of which being the prevention of hæomrrhage by retention of the blood clot. A strip aobut three inches long and one-half inch wide is cut from the sheet and sterilized by the use of hot water or alcohol; this is applied to cover the narrow end and sides only of the tampon which has been selected of the required thickness for the case in hand; usually one of the thinner ones from the box in which they are dispensed is sufficiently thick for turbinectomy. The whole is then grasped with a narrow dressing forceps and placed in position, in such a way that the rubber will be in contact with the cut surface, the packing of course only partially filling the cavity at this time; by the time the adrenalin has lost its effect the packing will have expanded till the cavity is so effectually closed that there is but little danger thereafter from hæmorrhage, and the patient may be allowed to go about his business, if not too active.

After some hours have passed and it is found that there is too much pressure exerted by the tampon, a portion of it may be removed as above mentioned, and when it has remained in the cavity as long as desired the whole is extirpated with the dressing forceps, without pain or adherence to the wound, as would be the case if gauze or most other packings had been used; in no case have I been troubled with post operative hæmorrhage if the dressing has been properly adjusted, and if inconvenient to remove it for several days I have not observed any bad results therefrom.

The princlpai advantage in using rubber of the thickness mentioned, instead of the tissue form, is the smoother surface in contact with the wound, and the fact that the elasticity of the thicker covering causes it to spread at the fold and form a cup like receptacle which effectually holds the blood clot in place.

When one contrasts his experience in the use of this dressing with that where the gauze packing has been used, and where it is incumbent on the operator to remove it not later than the third day by forcibly tearing it away from the wound to which it closely adheres, with the ensuing bleeding and delayed healing, it is very gratifying to both patient and operator.

With no other dressing have I had so little hæmorrhage or other annoyances follow; and none is so efficient—whether the case be a resection of the septal membrane, the removal of a section of hypertrophied turbinal or septal spurs, and where formerly with other packings I found it necessary to keep my patients very quiet, if not in bed, after nasal operations, I now allow them much greater freedom, with full confidence that no untoward results will be likely to occur from so doing.

173 Wisconsin Street.

DISCUSSION.

JOSEPH F. ROE (Binghamton): The question of proper dressing to control hæmorrhage after intranasal operations has ever been the most serious factor in successful work along these lines. It was only a few years ago that turbinotomy was often abridged or ill advised when we took into consideration the extreme discomfort and danger of hæmorrhage and pressure liable to start up an otitis media. Probably all of us have had threatened middle ear disease from the gauze tampons, surely we have all had the disagreeable work of taking out the adherent gauze strips, and perhaps have in many cases had to repack for hæmorrhage

so caused. Eight years ago one of the foremost rhinologists in the country in packing my own nose after a spur operation used a strip of copper wound with cotton and saturated with an antiseptic. I had a beautiful otitis media in two days, with perforation of the tympanic membrane, and since that time I have been very strenuous in my search for a perfect dressing. I have tried everything in turn, including the rubber dam with gauze packing about it to hold it against the wound and sponge used for the same purpose. As there is nothing in the rubber except the pressure which helps to control the flow of blood I have found this far from an ideal dressing.

I believe as yet that *spunk* is the ideal dressing. Doubtless all are acquainted with it, as it was much used and much discussed several years ago. It is prepared from a fungus taken from maple stumps or dead maple trees. The best preparation for our work is the specially selected pieces put up by the S. S. White Dental Co.

Instead of becoming adherent to the tissues after remaining a short time in the nose it becomes slimy, and altho porous it does not absorb any of the elements of the blood. The simple light pressure of this against a blood vessel or bleeding surface absolutely thoroly controls the hæmorrhage without any discomfort to the patient. There is not nearly as much mucous and serous discharge when this is used as a packing as with the sponges or gauze. The packing is removed the second day, and even after twenty-four hours one or more of the slimy strips may be drawn from the bunch, thus relieving any pressure that may be giving discomfort. The preparation is easily sterilized, cut into narrow strips and packed horizontally in the nose as desired. I am in the habit of using some antiseptic powder dusted over the spunk before inserting it. At present I am using camphophenique powder for this purpose. I have been using this preparation of spunk for a number of years as a nasal dressing and believe that in it we have the most ideal dressing which will ever be found.

JOHN B. GARRISON (New York): I want to add my testimony to the efficacy of the method advocated by Dr. Beebe. For several years I have used soft black rubber sheets (made by the S. S. White Company) for making suitable strips to place next the cut surface when packing the nasal cavity. It never becomes adherent to the raw surface and consequently never causes hæmorrhage when the packing is removed, as is the case when any absorbent material is used. For the past two years I have been using less and less in the way of packing after operations in the nose and think that in at least 75 per cent. of my nasal cases I do not now use any packing at all. There is usually a little secondary hæmorrhage when the effect of the local anesthetic disappears, but that is generally slight and the patient is so much more comfortable than when the packing is present that I prefer to leave it out unless there is a history of a tendency to bleeding of wounds. If that appears I pack as a precaution, of course; otherwise I have the patient carefully observed for at least six hours. I have so far had no

secondary hæmorrhages that needed any attention. I do however frequently insert the rubber alone, or perhaps a strip of sheet gutta percha, to prevent adhesion, and have the patient wear that little splint, which is not noticed in any way, for all of the healing period.

D. A. MacLachlan (Detroit): I also want to endorse the method spoken of by Dr. Beebe but, like Dr. Garrison. I have of late years tended more and more to the avoidance of all dressings whatever. I take pains to have the patient's room, as well as the room in which the operation is performed, absolutely clean as well as all my instruments; I control the hæmorrhage at the time, see that everything is open, insufflate an antiseptic powder, preferably aristol, and then meddle as little as possible with the nose until it is healed up. I have been surprised at the few cases in which I have to use packing, and how much quicker the healing takes place—in about half the time—than when I used the older method of dressings.

J. A. Campbell (St. Louis): What preparation do you use for cleansing for the operation?

Dr. Garrison: My universal technique is electrozone, one to five.

A. W. Palmer (New York): In nervous cases, instead of packing the nose I use the peroxide of hydrogen full strength as a douche. It makes a kind of plug of blood and albumin that exerts no pressure nor discomfort, and you have no bleeding. It can easily be washed out twenty-four hours after the operation.

C. E. Teets (New York): A dressing which I have used for many years, and which I think is equally good as the rubber splints, is strips of lintine one-half inch in width dipped in melted calendula cerate. The cerate is warmed until liquid, the lintine dipped in and allowed to cool. To use it, it is pushed thru as far as the posterior end of the turbinal; it must not be packed too tight; it will stop all oozing or other hæmorrhage. I seldom have a case of hæmorrhage after using this, and I operate upon between three and four hundred cases every winter. The calendula seems to promote healing.

Lately I also have been using no dressing after operations—as an experiment—simply applying geranium after the operation. I have operated upon a number of children, removing both turbinals, both tonsils and the adenoids at a single sitting without other dressing than this preparation. It is composed of twenty-five grains of ferripyrin and four drops of carbolic acid, 95 per cent., to one ounce of the fluid extract of geranium maculatum. After the operation, the passages are cleaned with peroxide of hydrogen, the parts dried with sterilized cotton and then the whole surface thoroly painted with this preparation; I have never had a secondary hæmorrhage.

In regard to operating upon the nose and letting them go with no dressing I want to say, especially to the younger men, do not be too sure about it. Do not let your patients get beyond your reach unless they are well protected from secondary hæmorrhage; keep them in a hospital if you use no dressing. I have had four cases in a single after-

noon, three without any hæmorrhage and the fourth apparently without any change in the mode of operation, yet one had a troublesome and persistent hæmorrhage. So you see that you can not always depend on the proposition that you are not going to have any hæmorrhage because you have not had one so far. The occurrence of hæmorrhage depends more upon the patient than upon the method of operation. Some patients will not bleed under any circumstances. This preparation that I speak of forms a coating much like collodion. It cannot be kept long as it gets sticky; it should be freshly prepared and put on quickly.

W. H. PHILLIPS (Cleveland): Four years ago I learned from Dr. Teets his method of packing with folded lint well oiled with some astiseptic lubricant, and for a year used it with great satsifaction. Three years ago, while watching Dr. Whiting pack a mastoid with perforated rubber sheeting, it occurred to me that the same method might be applicable in nasal work, and since then I have used the rubber almost continuously. Last year, before this body, at the time the symposium on "Septum Resection" was presented. I described this modification of Dr. Teets's method, giving due credit to Dr. Teets.

A few months ago Sharp & Smith, of Chicago, made for me a bivalve splint similar to a bivalve vaginal speculum, with a thumb screw for tightening the blades, which I have used several times in resection work. If any of you had your nose packed tightly on both sides for twenty-four hours and have experienced the frontal headache, the spasms of the soft palate and the terrific middle ear fulness which follow, you will realize the advantage this splint offers over the packing method. As made now, it is too clumsy and heavy. Dr. Haseltine, of Chicago, has offered some good suggestions as to its improvement. One must be very careful, however, in using it, as it is an easy matter to interfere sufficiently with the circulation to produce death of the flaps.

DR. PALMER: I am one of the retrogrades who stick to the old things. Last week at the meeting of the American Medical Association a whole day was given up to treatment of the middle turbinal. The plan most favored was that of merely cleansing the turbinal, getting it dry and free from blood, and then applying a mixture of collodion and iodoform. I mention this because the majority of the speakers there seemed to consider this the best method of all.

DR. BEEBE: If you have your patient in a hospital with all appliances and nurses at hand, no dressings may be all right, but many people dislike to go to a hospital for such minor operations; they much prefer to go about their business with dressing in the nose than to remain in a hospital without dressing. They can do this with safety and without much discomfort in the way suggested. I should feel that I was not doing justice to myself nor to my patients if I allowed them to leave my office after an operation on the turbinals without being properly protected from possible hæmorrhage.

IN WHAT PERCENTAGE OF REFRACTIVE CASES IS A CYCLOPLEGIC NECESSARY, AND WHY?

C. GURNEE FELLOWS, M. D.,

Chicago, Ill.

WHEN asked by the president to contribute a paper on this question I accepted because the subject is an ever present one, and altho it has been discussed in this society many times I never have seen the time when the discussion was closed and, therefore I think it appropriate to devote more time for discussion than to the reading of a paper.

The first general answer is—in practically all of our cases.

As to what drug we use and in what proportion of cases.—that is another question, which I will be glad to touch upon.

This is an age of scientific prescribing and surely of scientific diagnosis; in the domain of our specialties there is nothing more accurate than our ability to diagnose the errors of refraction. Our instruments of precision are so numerous, the eye is capable of such thoro investigation, that we are not excusable if we omit any of the methods of precision. To carry this statement to its logical conclusion means that without a cycloplegic we are not absolutely sure of our findings in any given case of refraction. The exceptions, however, I wish to bring up for the sake of discussion and the recording of the opinions of the various members present. I likewise should be glad to have the contributions of the members as to their success or failure with the various drugs commonly used for this purpose.

There is no doubt that atropin heads the list. Its stability and reliability recommend it, but there are objections to its use which we will discuss. It is in such common use that very few special practitioners have any trouble with it because they know of its dangers. It is a most valuable drug when properly used, and altho dangerous in the hands of the inexperienced does not often lead to trouble under educated observation. I cannot too strongly condemn the practice of many physicians in prescribing atropin for conjunctival inflammations or following the removal of foreign bodies, when recent and uncomplicated, and the

routine practice of prescribing cocain and atropin when nothing else seems to be indicated.

We are all too familiar with the percentages to need to discuss them, except to remark that the weakest solution which will produce paralysis of the accommodation is advisable.

The objections to the use of atropin are not alone from the medical profession, but the public has had the subject brought home to it so forcibly that it is pretty well able to express an opinion itself. Enough patients have been poisoned by its use and so many have been incapacitated for a week or two that the subject is rarely mentioned to a patient without bringing up a discussion as to the necessity for its use, and altho the physician generally has his way I feel that it is only right that the patient should express his opinion and occasionally have his wishes deferred to.

I believe there are many cases in which atropin is used to start with that could have been examined under some other mydriatic, reserving the use of atropin as a *dernier ressort* only after failure to properly relieve the symptoms manifested by the patient. For instance, if a patient of twenty, never having had a cycloplegic used, presents himself for the first time to us and is apparently corrected of his refractive error and his symptoms are relieved by the use of homatropin, scopolamin or some of the other short acting remedies, is it not sufficient? If, however, repeated examinations, with and without the milder drugs, fail to satisfy us and the patient he will the more readily consent to the use of atropin at a time when it is convenient for him and his business, and any unexpected delays will, therefore, be the easier undertaken.

I have kept a little track for the last few months of the patients who have absolutely refused to allow atropin to be used in their eyes, and I find that the number is quite considerable. Patients who have had it used previously very frequently claim that the recovery to their former condition has never been complete, and whether this is true or not the feeling exists and the patients lose confidence in the man who prescribes it. With such patients who absolutely refuse the use of atropin, the above suggested plan of a milder mydriatic would generally be accepted and even atropin after it is proven to be a necessity.

I hope the discussion will bring out the experience of the members present as to whether any large proportion of cases fail to recover totally from the effects of the use of atropin.

A recent article published in the *Canada Lancet* for 1904-'05, by G. Sterling Ryerson, of the University of Toronto, upon "The Decline of Atropin," says that its use should be diminished because of its toxic properties first; second, because of the inconvenience caused by paralysis of the accommodation and the length of time required to recover the use of the organs for near vision, and, third, because other drugs have been discovered which attain curative ends without the use of atropin.

Referring to these objections, let us take them up in order:

Is the use of atropin declining because of its toxic properties? I believe we can answer this in the affirmative, as evidenced in the numerous substitutes so widely recommended. To be sure the substitutes themselves are not entirely free from danger, as we see reports of poisoning by scopolamin and occasionally by hyoscyamin.

Again, is the actual daily practice of an oculist according to his published recommendations? I know a good many oculists who talk atropin but who prescribe without it under many circumstances, just as I do, because of the exigencies of the case. I likewise have kept track of patients who have come to me from other oculists from various parts of the country,—well known reputable men,—who have examined the cases previously, and it is a more common thing to find that they have been examined without the atropin than with it. Now as to whether this is done as a routine practice does not always appear, and I do not believe that we need to judge a physician as to his ability by what he has done in an individual case, as for instance one of my patients within sixty days had been examined by a man of wide reputation in another large city without atropin and was wearing the glasses prescribed with apparent comfort, but wished a re-examination, proffering the statement at the time that atropin should not be used. Under those circumstances of course I did not use it, and I can very readily see why the former physician did not use it, so that I believe it is nothing against a man or his ability when we find that he does not use full atropin in every case. On the other hand, we all know of physicians who do use atropin as a regular thing, and it is not an infrequent occurrence to have those cases examined by some other physician afterwards and the glasses changed because of over correction. My observation has been that there is as much reason for reducing the strength of glasses prescribed by some of our confreres under atropin as there is for increasing the strength of glasses prescribed by others without full atropin.

As to the second question: "The inconvenience caused by paralysis of the accommodation and the length of time required to recover the use of the organs for near vision." During vacation time and especially preliminary to the fall opening of school I believe that children should have atropin, and by the gradual education of our families I think that we could have them in time for such thoro work in advance of the opening of the fall term of school; but when such children are referred to an oculist by the school examiners in the first or second or third week of school, the parents strenuously object to spoiling two weeks at that time. The same is more true of a business man, who never has time to stop except for fishing trips or golf and who will not take a week from business, but who will readily consent to an examination under some of the milder cycloplegics, deferring the use of atropin always until some future time. It is rare that the demand for an eye examination is so great that a patient will suffer inconvenience or take time from business as he will for an appendectomy or a mastoidectomy, which appeal much more to his sense of necessity.

As to the third question: "Have other drugs been discovered which attain curative ends besides atropin?" I believe so. I believe that homatropin, hyoscyamin and scopolamin have been successfully used in hundreds of thousands of cases. There are cases particularly susceptible to any drug and, of course, either of the above may produce toxic symptoms in individual cases, but I think there is no question that far fewer annoying effects are attributable to their use. It seems to me that most of our cases over twenty years of age might readily be examined with either of these drugs, reserving the use of atropin for those cases which are not corrected satisfactorily to ourselves and our patients, and particularly in the case of patients who live in the same city, where they can be re-examined at any time. In patients under twenty years of age I believe the use of atropin is more commonly called for. In cases complicated with muscular defects there is no question that the most thoro examination under the safest cycloplegic is advisable, and repeated examinations at that. An examination of a patient once made under a cycloplegic and recorded generally obviates the necessity of using it again for years, and with patients who come back from year to year as presbyopia approaches, I see no reason for annoying the patient by the further use of a cycloplegic.

SUMMARY.—In reply then to the question of the subject of this paper, I should say that a cycloplegic is necessary in refractive cases, as a rule; that in our younger patients and school children for the first examination atropin should be used with the usual precautions. When for any reason of our own or that of our patients, atropin cannot be used, one of the other cycloplegics should be substituted for the time being and atropin used at a time convenient to the patient and according to the necessities; that in all patients in later life,—particularly after twenty, or thereabouts,—the milder cycloplegics are more commonly indicated, and that still later in life from the time of presbyopia on, there is less demand for their use.

70 State Street.

DISCUSSION.

A. B. NORTON (New York): If I had not gone thru my case records for the last three years I should have agreed with Dr. Fellows, that it was necessary to use cycloplegics in nearly all cases. I think that in previous discussions of this subject I have stated that I probably have used cycloplegics in at least 75 per cent. of my cases, as that would have been my offhand opinion. I find, however, that in the last three years I have prescribed glasses for 1318 new patients. Of these 621 were fitted after an examination under atropin, and in 697 cases the prescription was made without the use of a cycloplegic. From these figures it appears that a shade less than 50 per cent. of all refractive cases, in my judgment, required a cycloplegic.

I always use atropin in determining the refraction where I believe it is best and necessary. With me patients must follow my advice or consult others. During this period I find 14 patients who declined to use the atropin at the time and were refused treatment. This indicates a small percentage who object to its use after the action, the necessity, and the benefit of atropin have been carefully explained to them.

My rule is always to use atropin because its action is more thoro and, as the author says, this is the day of scientific prescribing and scientific diagnosis; under the influence of atropin you *know* what you get.

My practice is to give the patient a one per cent. solution of atropin with instructions to instill three drops in the outer corner of the eye the night before and the morning of the day they are to return for the examination. In extremely rare cases, perhaps one in a hundred, to be sure of a complete paralysis, I have continued the drops for longer period.

One week after the examination, no more atropin being used, the patient is instructed to return for a final examination and a prescrip-

tion for the lenses. At this time the tests are repeated, the lenses are selected, placed upon the patient in the trial frames, and they wear them for from 20 to 30 minutes. If then found perfectly clear and natural the prescription is given.

As to my selection of atropin as a cycloplegic would say that in 26 years' experience with it in both private and hospital work I should judge it had been used at a low estimate in 100,000 eyes, and in but one case have I ever seen anything but temporary inconvenience from its use. That case was one of glaucoma promptly relieved by an iridectomy and with no loss of vision.

My patients are always allowed to use the eyes at the end of the week and *where necessary* to use them for a few minutes in important business, during the week, they are given a temporary spherical lens for the purpose. The enforced rest of the accommodation for a week is of great benefit to the patient, often relieves their headaches or other symptoms, and places the eyes in a condition to accept the new glass much better than they would otherwise.

The danger of over correction is only when lenses are prescribed while the patient is still under the cycloplegic. This is a frequent and serious mistake and should be avoided by waiting as I do until the cycloplegic has worn off. Over correction seems to me to be too frequently the error of the majority of oculists. My rule is to err on the side of weakness rather than strength and to keep glasses off from patients if possible.

The plan proposed by Dr. Fellows of repeated examinations with and without the milder drugs, and when this fails to use atropin, seems to me useless and not for the best interests of the patients. As already pointed out if my patients have not sufficient confidence in me, after a careful and thoro explanation, to allow me to use the atropin I prefer to allow them to consult some one following Dr. Fellow's plan with the knowledge that sooner or later in the majority of cases they will awaken to the fact that my advice would have saved them time, money and health.

As to the toxic effects of atropin, I do not believe there is any more danger in its use *when carefully used* than in any of the other cycloplegics.

The doctor's conclusions that atropin should be used up to about the twentieth year of life and after this time the milder cycloplegics is in line with the general custom of most oculists. Personally I do not hesitate to use atropin according to my methods at any age.

We have always been warned of the danger of using atropin in middle life and old age from fear of glaucoma. I do not believe we are any more liable to have glaucoma from atropin than from scopolamin homatropin, hyoscamin, or any other cyclopelgic. They all cause glaucoma mechanically, from crowding the iris over into the filtration passages. Cases have been reported from the use of all these drugs;

more from atropin because it is undoubtedly used much more frequently tnan any of the others. Why should we say it is more dangerous than any other drug having exactly the same effect except in the degree of paralysis of the accommodation. Has any evidence ever been produced showing that more of the iris is crowded into the filtration passages from atropin than from any of the others?

In conclusion, my reasons for using atropin are that it is the most sure of securing the most complete paralysis, therefore the most scientific. It is no more dangerous, and the longer enforced rest of the accommodation is most valuable to the patient and offsets the time saved to the patient from less reliable cycloplegics, especially when patients can be allowed to use their eyes with suitable temporary lenses for brief important business.

I have never seen a case in which atropin was used fail to get entirely over its effects; I have seen cases that have said they had not recovered, but I have never seen such a one. Very seldom does it take longer than two weeks, and the average time is much shorter. Most of them recover entirely in a week. The reason that other cycloplegics have come into vogue is simply the habit that most people have of running after new things. I have tried them all as they came out but have invariably returned to the old reliable atropin.

HAROLD WILSON (Detroit, Mich.): The only criticism I have to offer upon this interesting paper is that the writer answers the subject query by declaring that "practically all refractive cases need a cycloplegic;" then hedges by excepting patients who have reached middle age and then, after all, finally fails to tell us why the use of a cycloplegic is so universally necessary.

To judge by the amount of literature constantly appearing upon refractive anomalies, we have not yet exhausted the subject.

It seems to me that there are one or two questions that must be answered before we can reply to that which forms the subject of this paper. I should arrange these questions as follows:

1. *Should all ametropes wear glasses?*

Since the advent of what some of its disciples are pleased to call "the eye-strain theory" ophthalmologists are somewhat prone to split upon this question. There are still a few of us, old-fashioned, unprogressive and ignorant enough, perhaps, to believe that ametropia may often exist without needing any correction whatever, and yet we may be so inconsistent in other cases as to prescribe an eighth of a diopter lens, or be almost ridiculously particular as to the fitting of frames. The importance of settling this question is evident. If all ametropes need correcting lenses, a very exact knowledge of the ametropia in all cases is obviously necessary. If, on the other hand, some ametropes do not need correcting lenses, some ametropia may be ignored. Even if we could agree that the fullest and most absolute knowledge of refractive errors is secured by the use of a cycloplegic, we must settle the question as to how far such complete knowledge is a practical necessity.

2. *Are there not some cases in which a more perfect determination of the refraction can be made with an undilated pupil?*

The aberration of the refracting surfaces of the eye in the zones immediately surrounding the visual line is sometimes such that the enlargement of the pupil introduces refractive errors which practically do not exist when the eye is in its normal state. We have all found cases in which the patient's visual acuity could not be made as good with a mydriatic as without one.

3. *Must we not formulate a rule or principle to determine when a cycloplegic is indispensable before we can give the percentage of necessary cases?*

It is clearly not enough to say that a cycloplegic is necessary in order to determine the total refractive error. This is scarcely more than to restate the question.

I believe the key to the whole matter lies in the fact that the fitting of glasses, as well as the necessity for their use is not only an optical, but a physiological, problem. In other words, we are dealing with a human being and not merely with an optical instrument, so that the rules of procedure can never be purely mathematical.

For these reasons I am convinced that it is vastly more important to determine the conditions under which the use of a cycloplegic becomes necessary than to attempt to formulate a percentage expression of its frequency.

C. P. JONES (Newport News): It is my practice to use a cycloplegic in all cases of suspected error of refraction in patients under 35 years of age. I use a one per cent. solution of atropin three or four hours before the examination, when possible. I give full correction to be worn immediately, in cases requiring one diopter or less. If two or three or four I give 75 per cent. of full correction. In persons over 35 years I use homatropin,—Wyeth's disks, containing $^1/_{50}$ of a grain in each; one hour after the instillation they are ready for the examination. I have made a great many examinations among the Indians; they are trappers and hunters and do not know how to read, using their eyes for long distances. They are sent here to Hampton before going to Carlisle. Forty per cent. of such cases have mixed astigmia; it requires more or rather stronger cycloplegics to paralyze the accommodation of an Indian than of a white man. I have had trouble in that respect; I have had to use atropin twice a day for fourteen days in some of these cases before getting the full effect that I wanted. The astigmia is of quite high degree and is much reduced after two or three years of study.

E. W. BEEBE (Milwaukee): I gave up the use of atropin twenty years ago, as a routine procedure. It has been my experience in probably twelve or fifteen hundred cases that I do not use atropin in more than one per cent. of them. Therefore it seems clear that this discrepancy in our practice must be due to different methods employed

in making our examinations. The only cases that need atropin in my opinion are cases of hypermetropia and its results; if we limit its use to these cases, you will at once see that its necessity is very slight. It is however a matter of educational environment and it is not to be expected that we will all look at the subject in the same way. Some years ago I exhibited to this society an instrument designed for the purpose of correcting optical errors of the human eye. Double prisms (by rotating them) will accomplish the proper amount of spherical lenses combined with a cylinder, and I think it is the only way it can be done. It is my habit to prescribe for these cases making them come often, something as a dentist does; it is not a matter of visits. When I make a selection of glasses for a case I do not attempt to give full correction at first. I put what I consider suitable glasses on the patient and ask them to call again to make a report and to be re-examined. I have universal success without the use of mydriatics.

W. R. King (Washington): I am already on record upon this subject, as may be seen by consulting our transactions of some years ago. I have not changed my mind; my present experience simply confirms my views at that period. I am glad to see that Dr. Norton has modified his former views and improved somewhat.

Dr. Norton: I have not changed, I simply took the pains to hunt up the actual figures, while before it was guesswork.

Dr. King: It seems to me that the question resolves itself into the position taken by Dr. Wilson in his discussion as read by the Secretary. I want to endorse the position taken by Dr. Wilson. It is not an optical machine that we are dealing with, but a living organism governed by varied and complicated conditions; in one instance we may be obliged to use a cycloplegic and not in another. No doubt the claim that the use of a cycloplegic is the only scientific way to come to a conclusion as to the total amount of error is true, but as a practical matter it is not necessary to discover the total amount—the absolute error,—except in a very few cases. With the ordinary optical instruments at hand we are in a position to determine the astigmia and its axis, the retinoscope shows other forms of astigmia. When it comes to a case of ciliary spasm and we have to determin the difference between latent and manifest refractive errors, then it is wise and necessary to use atropin, but in my judgment it is a sad mistake to use it as a routine practice. I am not a routinist in either direction.

I use it when necessary and I try never to use it unless it is necessary. As to the results of its use I have seen patients who say, and they certainly should be heard on the question, that they have never enjoyed the same comfortable vision and use of the eyes that they had before its use. I have also seen long lasting conditions of retinal hyperesthesia. Nearly twenty years ago I saw a case in which a cycloplegic was used with proper precautions and yet it caused a retinitis that confined the patient to a darkened room for weeks, and he has never completely recovered.

The upshot of the matter is that I am against the *routine* use of cycloplegics but not against the use of cycloplegics. I was much interested in the remarks of Dr. Jones, of Newport News, and his experience with the Indians; I had never heard of the eye troubles of the wild man who has never had anything to look at but distant objects. I endorse Dr. Wilson's discussion.

J. A. CAMPBELL (St. Louis): My own personal experience is that as the years go by and I gain more knowledge I use less and less atropin or other cycloplegics. Never have I had any serious results from their use, but I am convinced that we can get along without them in a great measure. There is a firm of well known oculists in my own city with a very large business who never use them in any form whatever. I meet the same difficulty that most of you meet who are doing what you think best for your patients. We might take the haughty ground of Dr. Norton, but I for one can not do that. It is certain, however, that my use of cycloplegics is growing less and less, and I think that I get better results than formerly. Moreover, there are cases in which atropin has no effect upon the ciliary spasmodic condition. Dr. Beebe says that it is only in hypermetropia that atropin is ever needed. but I should say oftener in myopia than in hyperopia. We often see myopia which under atropin becomes hyperopia. and high myopia is frequently complicated by spasm of the accommodation.

DR. BEEBE: Then it was not myopia at all.

DR. CAMPBELL: So far as the choice between atropin and scopolamin goes, it is probably a matter of habit and luck with the one or the other. The danger of both these drugs seems to me to be over estimated, but that may be for the reason that in thirty-five years' experience I have never seen any bad cases of trouble from their use. There is less complaint of results among my cases than there was twenty-five years ago perhaps, which I ascribe to following the individual needs of my patients more closely than I did at that time.

H. S. WEAVER (Philadelphia): My experience tallies with the others; I use homatropin first, if I fail to get what I want I then use atropin. If possible I get along without any cycloplegic in my older cases. What made me speak, was the fact that I have had three cases of homatropin poisoning: One was a married woman; after the instillation of two drops of a solution of homatropin in each eye, I was called into the waiting room where she had been sitting and found her under the sofa. She was crazy in the fullest sense of the word. and remained so for fifteen hours. It was only by the injection of morphin that I could control her.

Another case in a patient who was allowed to use the drops at home; using a solution of homatropin, one grain to the ounce; it was used exactly according to directions. They had quite a serious time of it, calling in two physicians. The third case was not so serious as the other two.

DR. CAMPBELL: Are you sure that there was not a druggist's mistake in making up the solution?

DR. WEAVER: In the case that occurred in my office I made the solution myself from tablets. I was going to use one drop every ten minutes until six drops were used. After the second drop the patient became delirious, associated with a very active brain; she imagined all kinds of queer things; first, picking up ten and twenty dollar bills off the office floor; the next was that she had a bowel movement in her clothes, etc. Many of these symptoms lasted for nearly twenty-four hours.

B. G. CLARK (New York): Before we knew how to use the retinoscope it seemed to me necessary to use atropin often. Since then a milder cycloplegic filled the bill, and some mild cycloplegic with the retinoscope ought to be all that is necessary for very nearly all refractive cases. Atropin should be limited to some cases of severe eye strain and to get the absolute data of such a case as Dr. King speaks of.

About twenty years ago I fitted a case with glasses and heard nothing of the patient until quite recently; an oculist wrote to me in regard to the record of the case; I was glad to be able to give the data that I had on my books. This shows the advantage of having the data recorded. The cycloplegic that I like to use is a little disk made by Burroughs, Welcome & Co., consisting of homatropin $^1/_{50}$ grain and cocain $^1/_{50}$ grain. It does its work in half an hour; you are then ready to make your examination, and in twenty-four hours the effect is all gone. It is an advantage to have the proper dose measured and ready for use in each disk. If you have it in solution, the solution is liable to evaporate or deteriorate. Therefore, the disks are the best form.

C. L. RUMSEY (Baltimore): We are usually awakened each year by a discussion concerning the use of cycloplegics in refraction cases. I have noticed that no oculist states he never uses a mydriatic, nor that he always uses it; the question resolves itself into: When should we use a mydriatic? I have inferred from these yearly discussions that the greater our experience the less often do we use a mydriatic. This teaches us to individualize our cases; for example, pseudomyopia, accommodative spasm, etc.

I regard a correct axis more essential to the comfort of a patient than an absolutely correct cylinder. This can often be acquired only by the aid of a cycloplegic.

Again, I am impressed by the various experiences of members of the society in the misfortune of having poisonous effects from mydriatics. This is probably due to the method of instructing the patient how to instil the mydriatic into the eyes. In our hurry how frequently do we forget details; we fail to tell the patient to press on the canaliculus to prevent the solution from going down into the nose and throat. Again, we use mydriatics differently, and do we not fail often to individualize the case in prescribing the mydriatic? Some patients are more susceptible to one drug than others.

J. W. STITZEL (Hollidaysburg, Pa.): I enjoy the part of my work that relates to refraction correction better than anything else that I do. I make use of scopolamin oftener than atropin; I use it myself the evening before the examination, and never trust it to the patient. Adults will often complain of marked dizziness and will have a staggering gait in walking across the floor. I have never seen this toxic effect in a child. The older the patient the more apt you are to get the staggering gait and the dizziness. I have seen statements made that scopolamin and hyoscyamin are the same alkaloid; Merck charges a good deal more for the one than for the other. The question whether you use any drug in the eye or not depends a whole lot upon the occupation of the patient, and also whether you want to put on a full or only a partial correction. Only one-quarter diopter added to the cylinders worn by the patient may give a whole lot of relief to a headache.

I also use homatropin; I prefer it to atropin on account of its relatively quick recovery. It takes fully two weeks to recover from atropin, while with homatropin the patient can go back to work in thirty-six hours. I have never seen serious results from homatropin in my practice. I have seen lots of cases where there was no latent error. I always tell my patients that there will be some blur at first, and I watch them for over a month.

DR. NORTON: I have heard this subject discussed and threshed out over and over again, and there is never any conclusion reached. In regard to the value of such discussion I must disagree with Dr. Rumsey. The majority of men are set in their way, their opinions are based upon their experiences. We none of us know our failures; we all believe our method is best, or else we are dishonest. I do not think that anybody's opinion is changed by this discussion. The results are all personal. I do not know what percentage of Dr. King's cases or my own go to somebody else who cures them. We both think our percentage of failures very small but we have no means of knowing.

DR. FELLOWS: I am glad that we do not all agree with each other, if we did there would not be any use of coming here; I come to learn; I learn from those who agree with me and I learn from those who disagree with me. I go home and try new ways that I have learned here, I like to disagree with Dr. Norton and I like to agree with him. I do not agree with him at all as to the value of discussions such as we have had. I know that the subject has been discussed here many times, and I hope that it will be discussed many times again; it is only by thrashing the matter out that we arrive to any truth. My impression was that Dr. Norton used atropin all the time and in almost every case and in the face of all opposition, yet here we have his statement that he uses very much less than he thought he did, and I am sure, much less than anyone else thought he did. A few years ago I used atropin less than I do at the present time, and this increase is the result of my personal experience, which has taught me to do so.

Another thing, do we practice what we preach? I do not believe that any of us actually practice all the time as we preach. As Dr. Wilson says in his discussion, I did not say everything, if I had there would not have been anything left to say next year. I am willing to admit that the reason for using cycloplegics is different at different times. I do not think that we have any right to judge a man because he does or does not use atropin. If a patient comes in your office to be fitted with glasses and must go home again on the next train, you would do one thing and quite a different thing from what you would do if you had plenty of time to go in to the case. Some quick acting effect is needed in the first case. A man might do something in the hospital that he would not think of doing in his private practice. There is no fixed rule, and we can not judge men by single instances. I have seen one of the so-called best operators—a man of renown—pick up a sponge that had dropped on the floor and put it in an enucleated eye socket. In spite of the fact that I am down in cold print and as it were on record, I believe that my statistics, if accurately taken, will be just the reverse, and that I do much of my work without cycloplegics, say seventy-five per cent. of it, reserving twenty-five for cases where their use is necessary.

I prefer to see a case at least four times, because I believe that a patient is a better advertisement when satisfied and when I am satisfied with the work myself. In about a month I want to see him or her again, or have them write to me about the results, etc.

Patients who come from or thru other physicians can be kept track of easily. I sometimes write letters to patients and come across the fact that they have gone off to some other doctor, but I do not feel very much hurt about it. A courteous letter generally gets a pleasant reply from those who are satisfied and sometimes from those who are dissatisfied. I agree with everybody who disagreed with me, because circumstances alter cases.

THE SIGNIFICANCE OF SUBCONJUNCTIVAL ECCHYMOSIS.

JAS. A. CAMPBELL, M. D.,

St. Louis, Mo.

DIAGNOSIS and then prognosis are reached by an intelligent interpretation and analysis of the aggregated symptoms before us. Hence to judge aright the importance of a symptom, it is necessary to consider the causes which produce it and the relative importance of the results which may follow. It is with this thought in mind that the subject of this paper is offered.

Idiopathic ecchymosis of the conjunctiva is comparatively frequent. A blotchy, uniform hemorrhagic spot in the conjunctiva with sharp uniform limitation of outline. It is distinguished from inflammatory redness by the absence of any network of vessels.

The suddenness of its appearance is alarming to the patient, tho generally there is an absence of pain or much irritation.

In his efforts to reassure the alarmed patient, the physician usually makes light of it and dismisses it as an occurrence of little importance. In fact, the text books on the eye devote but a few lines to it. But I am of the opinion that in many cases it is of serious significance, sufficient to justify at least a brief consideration.

Ecchymosis of the conjunctiva may result from various causes. It may follow great bodily exertion, sneezing, whooping cough, local injury, and at times fracture of the base of the skull.

A predisposition to a rupture of the conjunctival arteries is found in those with weakened or brittle arteries in general. Hence more frequent among older people, or in those with arteriosclerosis or atheromatous softening; therefore, where there is loss of elasticity with high arterial tension, or a consequent diminution of resistance with added blood pressure.

This tendency to lack of elasticity and weakening is likewise associated with gout, syphilis, lead poison, alcoholic abuse, nephritis, rheumatism, and is also found in typhoid and scarlet fever. This is not local but general.

Why the rupture is more frequent in the conjunctival vessels, is

probably because of the delicacy of this structure and the lack of tissue support, and hence of resistance.

It will thus be seen that the conjunctival ecchymosis is as a rule a complication which follows some definite predisposing cause, associated with a lessened arterial resistance, either temporary or permanent. This being general and not local predisposes to similar hemorrhages in any other part of the body; in the brain (apoplexy), inner eye, heart walls, kidneys, etc.

The majority of cases coming under my observation have been in persons over fifty years of age; where the predisposing causes mentioned above are more likely to be found.

In connection with this subject has been, to me, another interesting fact. Last summer I had five cases of conjunctival ecchymosis within the short space of three weeks time. We are all aware of that strange and unexplained law of coincidence, where several cases of cataract, strabismus or enucleation follow at short intervals. In these last mentioned cases there could not be any special predisposing cause to explain, for they have nothing in common. But in conjunctival hemorrhage, in the class of patients it is most frequently found, there is generally a similar underlying cause: brittle arteries and increased arterial tension. So in my five cases mentioned I can readily believe that some atmospheric or telluric influence, which regulated atmospheric pressure at that time was the real cause of the increased arterial tension, and the hemorrhage was a natural result of the combination of conditions present.

This view may perhaps be more readily accepted when we recall the well known effects of variations in atmospheric tension in balloon ascensions when high altitudes with rarified air are reached, where hemorrhages from the nose, ears and even eyes are recorded. The inner pressure is greater than the outer; the equilibrium is disturbed and hence the hemorrhage is outward. In the compressed air of the caisson, in bridge building, the hemorrhage is inward, as in the spinal cord or brain tissue. But in neither of these cases is the defect universally uniform, some are more easily affected than others, depending upon the arterial condition and capacity of resistance of each individual.

The reasons for the presentation of this paper and the conclusions which follow will now be evident. They are:

1. Conjunctival ecchymosis is a result of increased arterial ten-

sion with a weakened resistance, which is probably general as well as local.

2. Such cases are of serious import and prognostic significance. When they occur the situation should be carefully investigated, the conditions thoroly explained to the patient so afflicted and, if examination shows increased arterial tension with indications of arteriosclerosis or athermatous degeneration, the patient should be carefully instructed and warned to avoid anything which could aggravate or intensify such predisposition, and thus be enabled to avoid as far as possible the occurrence of a more serious cerebral hemorrhage which might easily terminate fatally; for truly, as a celebrated surgeon has said, "A man is as old as his arteries."

Mermod-Jaccard Building.

DISCUSSION.

ALTON G. WARNER (Brooklyn): We must all agree with Dr. Campbell that ecchymosis of the conjunctiva is too often treated as of little importance. In many cases it is a warning of trouble to follow and a full understanding of the possibilities might mean years added to the life of the patient. Some patients will fail to follow advice in this as in other things, but we shall have the satisfaction of having done our duty if we carefully explain the significance of this symptom as suggested in the paper.

LLEWELLYN E. HETRICK (Asbury Park, N. J.): As a matter of fact, in itself subconjunctival ecchymosis is of very little importance, but becomes significant when occurring under certain conditions. In hemorrhage under the conjunctiva the result of traumatism—and I class for practical purposes hemorrhages which follow whooping cough, sneezing, etc., as traumatic—we have the history of the case whereby we make our diagnosis of traumatic hemorrhage.

However it is the so-called idiopathic hemorrhage which is of most importance. It is a symptom of some systemic condition and should be considered a danger signal. When a patient comes into our office frightened, with a red circumscribed blotch of variable size and shape upon the bulbar conjunctiva, we should explain to that patient the nature of the accident and refer him to his physician for a thoro physical examination.

Some of the diseases in which subconjunctival hemorrhage may occur, and which the doctor has not mentioned, are diabetes, epilepsy, thrombosis of the cavernous sinus, ulcerative endocarditis and yellow fever.

Ordinarily, subconjunctival hemorrhage required no treatment, the hemorrhage being gradually absorbed by nature, however I have found a solution of dionin to hasten this reabsorption.

C. G. FELLOWS (Chicago): Rather than apologize for his subject, Dr. Campbell should be congratulated for presenting such a paper. I would rather hear the common every day diseases discussed by men who have had actual experience in hundreds of cases than the theoretical compilations on subjects that are very scientific perhaps, but such as we will not meet with in twenty years' practice, nor comprehend when we do hear it read. We all meet these cases frequently and know what they may mean, but I never feel on that indication the patient should be subjected to a ten or twenty dollar examination. An examination should include one for refractive errors, and as I do not make my own findings of heart, arteries, urine, etc., I should have to send him to other specialists, which means several other examinations, so that the patient is put to much trouble and expense. It is wise to go to this trouble if it is necessary, but the question is, is subconjunctival ecchymosis a sign of sufficient importance to warrant it. It seems to me that there ought to be something more.

H. W. WOODWARD (Washington): It is the custom of one of our best specialists in Washington always to take the blood pressure of his patients. Where atheroma is suspected that may be all right, but it cannot give much information of value in the generality of cases.

DR. CAMPBELL: When a man comes to me with subconjunctival ecchymosis, it has been my custom to say you must not run for a street car, you must not run up stairs, you must not lie down and take a nap after dinner. I do this as a matter of precaution, and it never does a man harm to take care of himself. Sometimes we neglect or take too little notice of these trivial troubles, which still may be of great importance as a sign of deeper things. How many of us have a sphygmograph in our offices? It is generally only the man who is lecturing in a college and has to show one to his classes. Perhaps we should pay more attention to these things.

DR. FELLOWS: I generally go home from these meetings with a determination to buy a whole lot of things. Shall I buy a sphygmograph?

DR. CAMPBELL: No, but I think that there ought to be a man in every community who will do that kind of work for the profession. It would be a great piece of folly for us to buy all the instruments that are used by the various specialists.

H. C. BELLOWS (Boston): You spoke of determining the blood pressure by the ear, how can that be done?

DR. CAMPBELL: I referred to the tortuosity and rigidity of the temporal artery.

DR. WOODWARD: Is the blood pressure greater after an after dinner nap?

DR. CAMPBELL: The blood pressure must be greater, the arteries are fuller.

SHEET-ANCHORS IN THE HOMŒOPATHIC TREATMENT OF AURAL DISEASE.

HOWARD P. BELLOWS, M. D.,

Boston, Mass.

IN the treatment of aural disease many marked changes have occurred in recent years. How different are the modes of cleansing, disinfection and drainage from those practiced when very many aurists of today began their career! How different is the wonderfully adapted and perfectly controlled vibratory massage of today from the rude and often injurious methods of a very few years ago! How different the latest high frequency currents from the crude forms of electricity which were formerly used, if used at all, in the treatment of the ear! Above all how the modern surgery of the ear transcends all that was dreamed of by the operators of only two or three decades ago! Everywhere along these lines we find change to be the central fact, and the change has been progress in almost every instance—a progress which, in some directions, would astound the masters of otology who finished their careers even in the last generation.

There is one department of aural treatment, however, in which we find little or no change, search as we may. This is in the employment of internal medication in the treatment of aural disease. If we look to the practice of the old school in this regard, we find the small change to be retrograde rather than an advance. We find among the representative aurists of that school a growing pessimism in this direction. Among men of this class the use of internal medicines in aural practice has always been much restricted, at best, and when such remedies are exhibited it is with little confidence, and perhaps with equally small results.

Turning now to the practice of the homœopathic school in the treatment of aural disease we find, again, little or no change. But here ends the parallel, for the better the aurists in this school the more the internally administered remedy is relied upon in the treatment of nearly every disease to which the ear is subject. The more carefully the remedy is chosen, the more confidently it is exhibited, and the better are the results obtained. Here is no ever changing therapy either—the

same remedies are used that have always been used in this school since its earliest days. Not only that, but all good prescribers of the homœopathic school, everywhere, choose identically the same remedies with which to combat the same conditions, as indicated by the totality of the symptoms present in the case before them, and all look for the same definite results from the action of the drug upon the organism. Were these prescribers guided by empiricism such could not be the case—diversity in prescribing would be the rule, as the history of medicine so plainly demonstrates. Uniformity in prescribing and in results is obtained solely because the homœopathic prescriber selects the drug from a knowledge of its previously determined action upon the healthy human organism, and not because of its action upon lower animal organisms or upon the sick.

Here, then, is something noteworthy. In one department of aural practice, in one school of medicine, there has, contrary to the rule of progress in all other departments of aural practice, been no essential change within the memory of any aurists now living. And yet this fact argues not for stagnation but for stability. There has been no essential change in the practice of middle ear inflation, or of paracentesis, during the same period of time. It would be an insult to the intelligence of homœopathic prescribers and observers to suppose, for a moment, that any rule of practice would be followed with such unanimity and for so many years, for any other reason than for one only—that the procedure is justified by its results, and that these results are uniformly better than those which can be obtained by other modes of procedure of which the prescribers are not ignorant.

While absence of essential change in homœopathic medication is advanced as an evidence of stability it must not be forgotten, however, by all who are true homœopathists, that therein lurks a danger to this school. In one sense it is a shame to homœopathy that there has not been more change. The principle of a materia medica founded upon the actual demonstration of the action of drugs upon the healthy human organism is one of the foundation principles of medical science, and for this principle the homœopathic school of medicine stands. But it must be kept ever in mind that the methods of the past by which our working knowledge of drug pathogenesy was obtained, are not longer adequate to the present and future demands of scientific medicine. Certainly they do not meet the present day demands of the specialist in any department of practice. The verification of the old materia medica and the addition of new and more precise indications of drug

action, both upon the general system and upon special organs, is the arduous task which devolves, as a duty, upon the homœopathic school of today. In this our O., O. and L. Society, as a society of specialists, has already taken the initial step. It is most earnestly to be hoped that others will follow this example.

Among the many remedies which have come down to us from the past as applicable to the treatment of aural disease some have an action which is either more marked or is better understood than others. These more frequently used remedies, which have stood the test of many years in the hands of many observers of our school, may well be styled "sheet-anchors" in the homœopathic treatment of aural disease. To these I will now confine my remarks.

BELLADONNA.—First of all I will speak of belladonna for the simple reason that it is the remedy of which we naturally think first when in presence of any acute inflammatory condition of the ear. The action of belladonna in controlling the inflammatory process in any part of the human system is generally recognized in our school of medicine. When given sufficiently early, while the inflammation is localized and in its incipient stage, we not infrequently see a prompt and entire subsidence of all the symptoms. If given later, or when the process is of more aggravated type, we at least expect to see a modification of the severity, a shortened duration and lessened danger of after effects resulting from the inflammation than if the drug were not exhibited. In the case of the ear, there has been developed in the proving of the drug not only the subjective symptoms characteristic of inflammation but, in different provers and for several days' duration, actual congestion of Shrapnell's membrane, at the upper part of the drumhead, congestion about the short process of the hammer, engorgement of the blood vessels of the superior wall of the external canal and down along the posterior border of the hammer, and a distinctly marked pink reflex thru the drumhead from the congested inner wall of the tympanic cavity itself. The homœopathic applicability of belladonna to inflammatory states of the ear is therefore attested, not only by the subjective but by the objective symptoms which have been produced by the action of the drug upon the healthy human ear. The time for its administration is early, the earlier the better, before one can really determine whether it is an acute catarrhal or acute suppurative inflammation which is beginning, for in either case it is equally applicable. Occasionally aconite may be preferable in such cases, but in my experience, the great majority call for belladonna. The associated symptoms of the throat,

head, eyes and pulse usually make the choice clear. In severe cases I use the remedy locally as well as internally, dropping three or four drops of the tincture upon a bit of loose absorbent cotton, pushing it gently just within the external meatus, applying over this a hot salt bag, not more than four inches square, and over all a warm dry flannel, repeating this every hour if necessary. Internally I use in these cases one of the three lowest attenuations of the drug, according to the age or susceptibility of the patient. There are other uses for belladonna in aural practice, however, besides offsetting the simple beginning of inflammation in the middle ear. It follows this inflammation even up to involvement of the mastoid, in its earliest stages. It applies to inflammatory stages of the throat and of the Eustachian tube which progress towards the middle ear. It is quite as important in the earliest stage of furuncle, or of diffuse inflammation of the external canal. It is also equally applicable to acute exacerbations which occur in chronic inflammatory conditions of the ear. Aside from these states of inflammation, we find it exerting a regulating influence upon disturbed circulation, being associated in this sphere of action with ferrum phosphoricum and gelsemium. We find it useful in tinnitus aurium, the commonest forms which it produces being characterized as "ringing," "buzzing," or "roaring." In the more distinctly nervous sphere, we find it applicable to all forms of aural neuralgia, here being associated in action with magnesia phosphorica and mezereum. An interesting minor use for this remedy is its applicability to the "fluttering" noises and sensations in the ear which are due to spasmodic contractions of the intertympanic muscles, its associate in this action being strychnia. As regards the special nerve of hearing the existence of hyperesthesia acoustica reminds one at once of belladonna, which has produced this condition repeatedly in its provings, and has received the confirmation of exact functionl tests.

PULSATILLA.—This remedy is also of use in painful and inflammatory conditions of the ear, but in those less acute than the foregoing, and in later stages of their development. In catarrhal states it is applicable to the nasal and postnasal condition, as well as to comparatively mild cases of catarrhal involvement of the middle ear. In suppurative cases it follows belladonna after the discharge is well established and the whole condition become subacute—the discharge being profuse, bland, yellowish or greenish yellow and mucopurulent, the mucous admixture being noticeably large. The temperamental characteristics aid in the selection of this remedy, and we seem to require it much oftener in our younger patients than in those of mature years.

MERCURIUS.—This is a far reaching remedy, applicable in its various forms to many diseased conditions of the ear and adjacent parts, in different stages of development and in patients of all ages. It is not often called for in the acute onset of disease but usually follows belladonna or aconite. Its pain is more akin to aching and to soreness than to the more severe and pulsating or lancinating pain of belladonna. It is peculiarly applicable to an acute or subacute catarrhal condition of the nose and nasopharynx, the ordinary "cold in the head," which tends to involve the Eustachian tube and extend into the middle ear, with its characteristic group of symptoms exhibiting change of function and increased secretion rather than change of tissue. In this condition mercurius dulcis is the form to be greatly preferred to all others, in my experience. In patients with a chronic catarrhal affection of the middle ear I find this remedy to be the best in my possession to guard the ears against the encroachment of the common head cold, exerting in this respect a truly protective influence upon the ear. Mercurius solubilis I find better adapted to more general and more chronic nonsuppurative conditions of the ear than those which call for the dulcis. For instance, more chronic and general catarrhal states of the fauces and pharynx rather than of the nasopharynx distinctively, with less tendency to involvement of the Eustachian tubes, but extending often downwards, even to the bronchi, and exhibiting greater tissue change than the dulcis. Or very chronic catarrhal conditions of the tympanic cavity, with little tubal involvement but with marked alteration of tissue and loss of function. In the external meatus also a chronic, diffused inflammation, with marked change of tissue, calls for mercurius solubilis oftener than for any other of our remedies. Mercurius vivus may act equally well as the solubilis in all these conditions, but my personal experience has been with the former. When the involvement of the mucous lining of the Eustachian tubes is the main feature, in subacute and chronic catarrhal states, with marked deafness and tinnitus but no pain or especial involvement of either the nasopharynx or the tympanic cavity, I have the greatest confidence in one of the iodides of mercury—of course, in connection with judicious inflation. In other words, I am positive that the majority of my patients do far better in this condition when I exhibit one of these iodides in connection with inflation than when I rely upon inflation alone. In suppurative disease, as well as in catarrhal, mercurius is a most important remedy in aural practice. It is adapted to both subacute and chronic states, and the characteristic discharge is excoriating, offensive

and even bloody. Here, also, I prefer the solubilis. Mercurius corrosivus is usually employed, if at all, in solution for a local effect—long standing cases with foul discharge being sometimes syringed with a solution of about one part to 8,000 of tepid water. The relation of mercury to syphilitic affections of the ear need not be dwelt upon. In the selection of any of the mercurial preparations guidance is afforded by the perspiration without relief, the nightly aggravation and other general characteristics of the drug.

HEPAR SULPHUR is an important remedy in the hands of the aurist, but its use is practically confined to suppurative cases—chiefly to hasten the ripening of furuncles in the external canal or to promote discharge in suppuration of the middle ear. It is especially adapted to recent, acute cases which belladonna has failed to abort, and to cases where the discharge, already established, has become checked prematurely, with increase of pain, of febrile disturbance, and of distinctly localized tenderness upon pressure.

SILICEA is a remedy for suppurative conditions, also, in the main—these being chronic conditions of very long standing where osseous tissue has become involved, with a discharge which is thin, foul, excoriating and often scanty. I have thought in many of these cases that I gained ground more rapidly by using intercurrently with silicea, at intervals, either calcarea fluorica or silicofluoride of calcium, the so-called lapis albus. Silicea has two other widely different uses in our hands: first, the promotion of repair in perforation of the drumhead, either in recent cases or when the edges are being refreshed or stimulated with a view to closure, and, second, the relief of the after conditions resulting from effusion in the labyrinth, usually following well after gelsemium.

KALI MURIATICUM.—This is a remedy which must not be omitted from the list of prominent aural remedies, altho it, also, has no place in acute conditions. Its foremost use, in my experience, is to promote absorption of tissue infiltration. When acute or subacute inflammation of the middle ear, either catarrhal or suppurative, has left thickened tissue with sensation of local fulness, with tinnitus and with deafness, this is our most efficient remedy to aid in restoration of tissue and function, after the discharge has ceased and all other acute symptoms have subsided, and while the hearing is being increased by inflations and by local vibratory massage. It is the remedy, in other words, which helps us, more effectually than any other, to clear up these cases and restore them to normal states of sensation and hearing, after all

active symptoms have disappeared. It is, also in my experience, our most effective remedy in checking the progress of sclerosis of the middle ear—in connection with vibratory massage and the high tension current.

STRYCHNIA.—This is the last remedy of which I shall speak—a remedy which stands us in good stead in labyrinthine cases, at not too early a state, when we are in presence of nerve degeneration affecting the hearing, whether as the result of injury, of disease or of senile changes. I have tried the various forms of strychnia, over long periods of time, and have settled upon the phosphate as being, in my own experience, the most generally effective. Associated with this remedy, in this sphere of action, is kali phosphoricum, this latter being especially adapted to the nervous deafness of patients advanced in years, poorly nourished and liable to atrophic degenerations.

Other remedies than these have equally well marked but more limited spheres of action, and yield results which can be relied upon with equal confidence. They may, perhaps, be quite as worthy of mention as some upon which I have dwelt, but they would swell the list unduly and carry this paper beyond the bounds allotted. The few which I have especially presented will be indorsed by all in the homœopathic school as veritable "sheet-anchors" in aural practice.

220 Clarendon Street.

DISCUSSION.

W. R. KING (Washington): I had an opportunity a few days before leaving Washington of looking over Dr. Bellows' paper. I saw nothing that I could dispute, much that I could commend and little that I could add. Commendation for such a paper read before this society is the first thing that one should naturally want to express. We do not have a great deal of materia medica written about in our society, naturally our papers are along the line of scientific research in local conditions and local treatment of the eye, ear, nose and throat. It is in a measure independent of internal remedies. We are keenly alive to advances made in fields of surgery, electricity, light therapeutics, massage, etc., and are to be commended for it, but we possibly may be condemned for too little attention to our materia medica which should give us a distinct advantage over old school specialists in the same line.

Our remedies were used by the practitioners in the early days of our school with distinguished success, and they are still as good, as capable of making the same successes as they were then, if we will only acquire the skill to use them. That we have not improved our knowledge of

these remedies but have too easily gone to other fields is a matter of condemnation. It is a matter of congratulation, however, that a strictly scientific and laborious reproving of a drug has been done by Dr. Bellows under the auspices of this society and with the approval of the American Institute. Of this work each one of us, as well as each member of the profession, should have a copy.

I do not know that I can add anything of value to the remedies mentioned; there is a remedy that I have used with a great deal of success, the old well known remedy brought out by Professor Houghton, as efficacious in incipient mastoiditis, I refer to **capsicum.** The symptoms of congestion, tenderness, swelling and redness I have seen all disappear under its use. The potency that I am in the habit of using is the 6th decimal. I have occasionally used belladonna in conjunction with it with good success. I have sometimes averted operative measures by its use. In one instance operation seemed unavoidable, and I made all preparations for it. In the meantime I gave capsicum to relieve the pain, and by the next morning the case did not need an opertion.

Pilocarpine I have found useful in conditions of the labyrinth resembling Ménière's disease. I do not say that pilocarpine will cure a genuine case of that disease but it has relieved cases that simulated it. A child who was an old patient of mine was suddenly attacked with profound deafness. I have seen her only about six or eight times. She lives at a little distance from my office and comes Friday to me, staying until Monday. There was absolute deafness with loss of bone conduction. I also discovered slight but distinct vertigo and some nausea. I gave a guarded prognosis and put the child upon pilocarpine 2x, tight tablets, to be taken in a day. I did not inflate the middle ear for fear of putting more pressure upon the internal drumhead but used careful pneumatic massage, using the suction and release. The condition of the membranum tympani was rather negative. There was none of the peculiar lustre of a healthy drumhead. On the following Friday she was decidedly better, bone conduction was beginning to be apparent. She continued to improve quite readily and on Sunday I could make her hear the ticking of an Ingersoll watch of the ordinary dollar and a half variety, which is what I use for that purpose, at a distance of fourteen inches. No other internal remedy was used than pilocarpine. My first introduction to pilocarpine was in Professor Politzer's clinic twenty-five years ago. There I saw it used in the dose of $^1/_{150}$th of a grain hypodermatically in cases of Ménière's disease or rather in cases that simulated it. I was impressed with its good effects and ever since I have used it in similar cases in the second decimal tablets.

F. D. Lewis (Buffalo): In cases of throat and ear troubles where belladonna seemed to be indicated I have thought that I got more rapid results by the use of atropin in the 3d or 6th decimal than from the belladonna.

G. F. Bagby (Richmond): I do not know what the past winter

brought forth for the members of this society but ear troubles came in to me in a perfect avalanche. Three cases came to me almost at the same time, one was an old farmer from New England who developed an acute inflammation of the middle ear, which went on to suppuration. I tried the classical remedies belladonna, pulsatilla and finally hepar. He made a fairly good recovery. The second case was a student from New York City. He developed acute inflammation, went to a general practitioner who administered medicine recklessly, and rupture of the drumhead and suppuration were the result. I found a bloody discharge with some pus which I tried to stop with mercurius. I had to operate on this case.

The third case was that of a young man who was a professor in one of the colleges in our state. He came home with a violent earache. I gave belladonna and ferrum phosphoricum; they saved the patient from the suppurative process—he made a splendid recovery. I appreciate Dr. Bellows' paper, it has helped me already and will help me more in the future. The question whether heat or cold relieves is a great question with me. I think that we get great help from these modalities.

H. S. WEAVER (Philadelphia): I suppose that during the last winter we all had many cases of acute ear troubles. In my experience ferrum phosphoricum seemed to suit the general run of cases better than belladonna. I was glad to hear Dr. King speak of using capsicum and belladonna in alternation because I am guilty of alternation myself; with those two remedies I have never secured results in alternation, but have from both when used singly. I have derived the best results from capsicum. In acute cases I often use atropin in place of belladonna. I dissolve one tablet, $^1/_{150}$th of a grain, in a half glass of water and give a teaspoonful every ten minutes. In this way I have seen it relieve a condition in which you would have thought that paracentesis was the only way out of the trouble. I think that I use more kali muriaticum in ear troubles than any other remedy. Chronic conditions are the best indication, also in the latter stages of ear suppurations. A small amount of whitish discharge is a good indciation for it.

E. W. BEEBE (Milwaukee): I would like to ask the essayist what he does for the pains of otalgia.

DR. BELLOWS: Capsicum I use, not in alternation with belladonna, but where belladonna has done what it should be expected to do—has helped the case to a certain stage—then capsicum comes in to finish up. When you begin a case with belladonna and it helps for a time and then seems to lose its hold, it is generally the time for capsicum; this will often avert an imminent operation—but not in all cases by any means. Of course, the ear drum should be incised early. I have an idea, perhaps not a well founded one, that capsicum ought to be fresh, hence I frequently have a fresh dilution made for my use from the tincture. I have also watched the effects of pilocarpine in Politzer's clinic, and I believe that we can get just as good effects by administering it on the tongue in dosimetric tablets as by means of the hypodermic

syringe. I use the same dose as Dr. King. Its place is in true Ménière's disease where there is actual effusion, not where there is hyperemia only. Atropin I have not used in place of belladonna, altho I have an idea that when we get down to proving remedies we might do well to prove alkaloids in place of the whole plants which contain them and owe their activity to their presence. The basis for that is laid in our proving of belladonna. Should the two alkaloids of this plant, atropin and hyoscyamin, be proven with the same thoroness and care which was bestowed upon the belladonna, we should be in a position, thru a comparative study of these provings, to answer this question intelligently.

In regard to ferrum phosphoricum taking the place of belladonna; it is easy to differentiate between the two, altho they resemble each other closely. In belladonna cases there is more systemic excitement with fever and restlessness. The ferrum condition is more purely local with definite throbbing or hammering within the ear. I was surprised once in a case where belladonna was being given and was losing its effect. I was about to follow it up with capsicum as usual when the nurse spoke of a markedly increased pulsation in the ear, and I substituted ferrum phos. instead of capsicum with the most happy result. There was no operation.

In otalgia I prescribe a remedy, usually belladonna, which generally relieves, and, as an adjunct, I apply a small, hot salt bag. A hot water bag heats too large a surface, the salt bag is better in that its heat is more local; it concentrates the dry heat at one point. Magnesia phosphorica is an excellent remedy for otalgia, the pain being characterized by sharpness and relief from heat. I never use ice because I have found it to aggravate. I do not use it even in suppuration. The hot douche I approve of highly in certain mastoid conditions. It is to be used where an incision has been made or where rupture has occurred or as an adjunct to hepar with pain and local tenderness where the discharge is insufficient. I do not like to use the hot douche where the drumhead has not been ruptured. It should be a gentle irrigation with water as hot as can be borne for ten minutes out of every hour.

In regard to the action of heat and cold, the secondary effect of heat corresponds to the primary effect of cold but is of far longer duration. Other remedies for the ear are picric acid, calcarea picrata and mezereum. Tellurium I think highly of when the fish odor of the discharge is present.

H. C. ALLEN (Chicago): Aqua sanicula has the same odor to the ear discharge.

DISEASES OF THE INTERNAL EAR.

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AT the outset it may be said that disease of the internal ear proper are extremely rare and difficult to diagnose. Those caused by, depending on, or associated with diseases of other parts of the ear are quite common. The close and firm bony encasement which encloses and protects the essential organ of hearing, makes it at the same time inaccessible to examine or treat.

The diagnosis must often be a matter of inference, notwithstanding the great advances in etiology in recent years, but primary lesions of the labyrinth ought to be determined with considerable accuracy. Clinical experience of recent years has added something to our means of treating such cases, both in the development of the old measures and discovery of new. The progress is so slow, however, that special study and observation along this line is surely demanded, and the selection of this topic by the president seems abundantly justified.

The writer reluctantly consented to prepare a paper, because of his own meagre clinical data on the subject, and did so only with the object of calling the attention of others and stimulating discussion and future study of such cases. The rush and lack of time in office and hospital work is responsible for the paucity of records of these conditions in his case book, but possibly some interest if not useful deductions may attach to the cases here reported.

It may be well for us to recall to mind the facts that "nerve deafness" depends either upon lesions within the cranium—such as concussion, hæmorrhage, effusion, purulent collections, inflammations, new growths, cysts, etc.—or upon lesions within the cochlea, such as anemia, hyperemia, effusions (serous or hæmorrhagic), exudations with new formations, bony growths and deposits. Traumatism and local or constitutional infectious disease must account for a large proportion of cases of internal ear affections, and diathesis also plays an important part in their causation.

Primary acute labyrinthitis is a very rare affection, and resembles panotitis in its onset and results. The attack, coming on in a previously

healthy subject, is marked by fever and great congestion of the face, followed by unconsciousness, delirium and convulsions, with deafness, dizziness and perhaps nausea, vomiting and pain. These symptoms disappear after a few days, except total deafness and staggering gait which remains for a long time. The diagnosis is not easy, but if a child is deaf and dizzy, and does not complain of pain or noises in the ear, the ear should be examined, and if found congested or inflamed, the disease may be inferred; active measures are needed to relieve or cure the patient.

Otitis interna, or inflammation of the labyrinth, is generally secondary to disease of the middle ear or mastoid, caries and necrosis of the temporal bone, fracture of the skull, blows upon the head, purulent or epidemic cerebrospinal meningitis, diphtheria, scarlatina, mumps, grippe, syphilis, and other infectious diseases.

The onset is marked by sudden roaring sensation in one or both ears, with perhaps fever and other constitutional disturbances. Usually within twenty-four to thirty-six hours the patient becomes dizzy with a tendency to fall to the affected side, associated with nausea and vomiting in severe cases which may continue for hours. The sounds in the ears are high pitched and constant, and the vertigo often compels the patient to remain quiet or in bed for days or weeks. Redness of the drum is perhaps the only objective symptom present.

There is partial or complete loss of bone conduction and hearing, and this, with the high pitched tinnitis on the affected side and the marked disturbance of equilibrium, indicates the character and site of the lesion.

Prognosis is bad unless absorption of the effusion or metastatic infiltration (which would be indicated by relief of symptoms) takes place within a few weeks at most. Permanent deafness, at least, remains if improvement is long delayed.

The following cases taken from my clinical records are more or less illustrative of labyrinthitis, altho, as has already been intimated, they are very incomplete and therefore less positive and instructive than they otherwise might be.

CASE I.—February 4, 1907. Mr. S., farmer, age 36 years.

Family history: Father was slightly deaf; had rheumatism for years before his death at 56 years.

Previous history: For ten years or more has had pain in his neck at times. Has not been strong, but able to work steadily. In summer has been unfavorably affected by the heat.

Hearing was all right up to six months ago. At that time went to bed hearing as well as usual; awoke in the morning with noises in the ears, was dizzy and "couldn't hear." It was a hot day preceding the attack. Dizziness was worse on moving, especially from stooping, and continued for months. The deafness in the right ear seemed permanent. Occasionally he felt a full feeling in the right ear with fulness and soreness in the left. Following the attack he was treated by his family physician for three months.

Present condition: Has nasopharyngeal catarrh and obstruction of the left nostril. The Eustachian tube open to Valsalva. Right ear, meatus red and swollen; membrana tympani red, congested and the bone prominent.

Watch—R., contact; L., $^{72}/_{72}$. Tuning fork—mastoid; R., $^{10}/_{40}$; L., $^{30}/_{40}$. Meatus: R., $^{15}/_{70}$; L., $^{70}/_{70}$. Weber—better in left ear.

Diagnosis: Ménière's disease.

Prognosis: Unfavorable.

Treatment: Spray to nose and throat; inflation by Politzer bag, and galvanism daily. Pilocarpin 3x trit. internally.

February 9. Thinks he hears watch on pressure. T. F. test the same. Continue treatment every other day.

February 16. T. F. R., mastoid, $^{15}/_{40}$; meatus, $^{20}/_{70}$. Discontinued treatment.

CASE 2.—March 8, 1894. Mr. G., lawyer and congressman.

Family history: Good.

Previous history: Soldier in war of the rebellion. Had syphilis at that time. Took a good deal of quinine at various times since. Three years ago after trying a case in court noticed deafness. Treated by homœopathic aurist for three months. Then by several allopaths without good results. Also consulted Buck, Sexton and D'Oench, of New York. Treated by Washington aurist during session of Congress.

General condition good, nose and throat also fair.

Membrana tympani only slightly retracted, light spot central. Not freely movable by Siegel. Eustachian tubes open to Valsalva.

Watch—R., contact (slightly); L., contact. T. F.—mastoid, R., $^{10}/_{40}$; L., $^{8}/_{40}$; meatus, R., $^{20}/_{70}$; L., $^{20}/_{70}$.

March 15. Watch, both ears, contact. T. F., mastoid same; meatus, R., $^{15}/_{70}$; L., $^{12}/_{70}$.

Diagnosis: Nerve deafness.

D'Oench had advised pilocarpine in physiological doses by the

mouth for two months, sufficient to produce free sweating. I advised against such use of pilocarpine because of the increased liability to cold it would create and the danger of cold aggravating the condition of the ears. Later, the patient visited New York en route to Washington, and pilocarpine was again urged. It was begun and continued in Washington. On returning one evening from a public gathering he took a severe cold, and awoke in the morning "stone deaf." I examined the ears at various times after, and found the middle ears remained practically the same as at the first examination, but the internal ear was absolutely unresponsive to tests and continued so until his death two or three years ago.

Dr. D'Oench and myself were the only ones to diagnose internal ear disease perhaps because we saw him in a later stage than the others, but we disagreed on the treatment. The query naturally arises, might he not have escaped absolute deafness had the treatment been more conservative and homœopathic?

CASE 3.—April 29, 1907. Wardie H., age 8 years; school boy.

Family history: Good.

Previous history: December 20, 1904, was struck on the back of the head by a snowball, and raved in his sleep for several nights. Complained of head hurting him. January 25, 1905, came home from school complaining of being chilly and that he could not see; was blind for several days. Had high fever and pulse, headache, dizziness and vomiting. Was sick in bed for nine weeks, during which time he continued to vomit, and was unconscious eight to ten hours of almost every day, usually following a convulsion during exacerbations of the fever.

About the fourth day, in the evening, he had two convulsions; next morning sight returned but he was deaf, and has continued so ever since. Hot applications were used at first, then ice packs later. After leaving the bed he was very dizzy for months; fancied he heard music at times, at which he was sometimes pleased and other times frightened, and dragged his feet. Had to learn again how to walk. Recovery seemed complete except the deafness, the loss of speech, and the shuffling gait which is still quite marked, especially when he is tired.

In March, 1906, he had another attack similar to the first, lasting a week or more. There seemed to be no further ill results from this, however, and he soon became quite vigorous again. So far as can be determined he does not hear a sound of any sort. For sometime he has attended the public school for the deaf; he is an apt pupil and is again acquiring speech.

The drum is slightly retracted, but is movable with Siegel's speculum, and the middle ear and the Eustachian tube are in good condition as is also the throat.

CASE 4.—Mrs. S., age 46. Seven or eight years previous became deaf in right ear, during an attack of grippe. No pain about the ear, but headache on vertex. Tinnitus, like sounds of boiling water, with dizziness at times. Has slight nasopharyngeal catarrh.

Watch: R., contact; L., $^{72}/_{72}$. T. F.: mastoid, $^{11}/_{40}$; meatus, $^{8}/_{70}$. L., mastoid, $^{25}/_{40}$; meatus, $^{60}/_{70}$.

Diagnosis: Otitis interna.

CASE 5.—Miss L. La F., teacher, congenital syphilis. Had interstitian keratitis and choroiditis. On waking one morning was entirely deaf in right ear, and has remained so since. No record of other symptoms.

CASE 6.—Mrs. S., age 60. Teacher. Was thrown to pavement while alighting from a street car, striking upon her head. Next day was unable to stand on account of dizziness. There was slight hæmorrhage from left ear with pain in and behind the ear and complete deafness. There was a dazed mental condition, which persisted more or less for several years. There was no recurrence of the hæmorrhage, and the other symptoms gradually were relieved, except the deafness, which was permanent.

Diagnosis: Traumatic otitis interna.

In only one (case 6) of those cited, was I privileged to observe the patient from the beginning. While she was confined to the house for several weeks she was under the care of the family physician, receiving I think only medical treatment. Later on I saw her at times. Remedies and electricity were used but with no improvement in the hearing.

Case 2 was thought to be primarily a remote effect of syphilis, and the final sudden and complete loss of hearing from acute exudation due to colds superinduced by the large doses of pilocarpine. The prescriber warned him that it might mean either prompt relief or absolute deafness, but the patient preferred to take the chance, and lost.

Case 1 would appear to have been one of hæmorrhage or effusion into the labyrinth, brought on by accident or some cause so obscure as to escape notice. If it had been recognized and treated, so as to bring about absorption before the fluid became organized, the result might have been better.

But in most cases the failure, if any, lies in the fact that they are not

diagnosed and intelligently treated until too far gone for relief or cure. The general practitioner should at least be familiar with the clinical signs of acute labyrinthine disease, which is sufficient generally to differentiate from the few conditions presenting similar symptoms, and if he suspects internal ear affections he can supplement his own judgment with that of the specialist.

Rinné's test appeared to confirm the clinical evidence in the cases cited, and it is assumed the same is true for Weber's, altho this is not recorded in all. I am in the habit of making both tests in nearly all examinations of the ear, so would hardly have omitted them in these.

Treatment is more or less efficient in these cases but must be instituted early; it rarely accomplishes much after six months. The old school depend mainly upon rest in bed, leeches to the tragus, behind the auricle and mastoid, blisters, ice bags or the Leiter coil to the mastoid, liquid diet, and internally morphia, bromides, iodides, salicylates, hydrobromic acid and pilocarpine.

Dependence may be placed, however, upon the indicated remedy in these as in other conditions, altho they should be supplemented by the various well tried general and mechanical therapeutic measures. Hygiene is of the utmost importance, and electricity, both galvanic and faradic, will do much in removing exudations, relieving tinnitus and vertigo, and toning up the paretic auditory nerve.

Acute inflammation of the internal ear calls for aconite, ferrum phosphoricum, gelsemium, bryonia, china, etc.

Subacute and chronic: chenopodium, kali phosphoricum, silicea, causticum, pilocarpine, muriaticum, potassium iodide, and salicylic acid. Physiological doses of the latter three remedies and of hydrobromic acid in special conditions are too highly extolled by both old and new school experimenters to be ignored by any one, however strictly Hahnemannian he may be in his belief and practices, but (like "heroic" measures of all sorts) need to be used only as a last resort or for some specific reason, and then carefully and intelligently with a full regard for the patient's welfare rather than to accumulate clinical or therapeutic experience and knowledge.

1301 Majestic Building.

DISCUSSION.

LEIGH Y. BAKER (Washington): This subject deserves our most earnest consideration, principally because we are so utterly helpless in its actual presence.

There is nothing, save nature, on which we can really depend except a very few adjuvants wisely displayed; and frequently the highest wisdom consists in withholding them.

Regarding diagnosis, the greatest difficulty is experienced in the lighter attacks and in those cases where the trouble is an extension from a middle ear condition, for the middle ear symptoms may mask those produced by labyrinthine involvement until the condition is profound.

Altho tinnitis is the most constant symptom of labyrinthitis, it may be entirely absent—as shown by the following case:

A child of five was brought to me with an otitis media. When the ear was cleared of pus her hearing was fair, there was a large perforation of the drum, and she said she heard no noise. The discharge became less thru careful attention, but about two weeks after I first saw her she developed meningitis. During her convalescence she became deaf on the affected side. She had complained of no subjective noises at any period of the disease. Her recovery was slow, but as her strength returned she gradually recovered a portion of her hearing, and about one year after her illness the hearing was one-half of normal. She had a little difficulty in walking at first, but that disappeared and she seemed perfectly normal in all save the reduced hearing.

I had a case that had been diagnosed locomotor ataxia until the patient complained of deafness. The early diagnosis had been made in spite of an annoying tinnitus of which the patient had complained.

Another case from specific cause developed labyrinth involvement at about the same time as a bilateral hemianopsia. There was not a great loss of hearing, but the tinnitis was severe and the vertigo considerable. The prognosis was grave, and the patient died about five months after the eye and ear involvement.

As to remedies, the fact that pilocarpine, which is about the only drug that has been used to any extent in these cases, acts either very slowly or not at all, raises in my mind a question as to its efficiency.

When we do arrive at a favorable end in a case where it has been used, is the cause pilocarpine or nature?

When the acute symptoms are past the tonic effect of strychnine is most frequently called for. My preference is for the phosphate in $^1/_{100}$ to $^1/_{50}$ grain dose given ter in die.

E. W. Beebe (Milwaukee): In the few cases where there is congestion of the drumhead it would be my practice to perform paracentesis. These are cases where we are compelled to depend largely upon our remedies. Gelsemium is a useful remedy that was not mentioned in the paper.

H. W. Woodward: What tuning fork do you use?

Dr. MacLachlan: C 1.

President Mann: I asked the doctor to prepare this paper because I had a case that seemed to be an affection of the labyrinth. The patient was a woman in the climacteric period; she was awakened suddenly in the night with pain which eased a little and she fell asleep.

When she awoke in the morning the slightest motion or turning of the head would produce vomiting without nausea and there was complete loss of hearing on the affected side. The condition improved very gradually during six months. The first sign of improvement was that she could turn over in bed without being nauseated. The second improvement was that she could raise her head to the extent of a pillow, then successively two, three and four pillows, then came, gradually, standing up and walking round. But even now she has to be careful in turning around corners. There has been no improvement in the deafness at all. I suppose that she is liable to have another attack of the same kind in the other ear.

DR. MACLACHLAN: What remedies did you use?

THE PRESIDENT: Chenopodium, potassium iodide, cocculus and some others. She could not stand material doses of the iodide. There was simply gradual improvement.

C. G. FELLOWS (Chicago): I feel comforted in listening to these papers and discussions that show more or less inability to cure such cases. I have a lot of them that I can't cure. I have become much encouraged this afternoon in finding that I am not any worse than the rest.

CAN REMEDIES SELECTED UPON HOMŒOPATHIC PRINCIPLES BE TRUSTED TO CURE SYPHILIS IN ITS VARIOUS STAGES?

JOHN B. GARRISON, M. D.,

New York City.

SINCE the discovery of syphilis in Europe in 1493, the medical profession has been endeavoring to find a curative method of treatment of that most insidious of diseases and has in the main met disappointment. It was soon observed that mercury, which had long before been used by the Arabians as an efficacious remedy in the treatment of various cutaneous eruptions, caused the lesions of syphilis to disappear when applied in the form of an ointment, and it was therefore heralded thruout the land as a specific. As has been the history of so many specifics for an equal number of diseases, failure was noted in many instances, and the usual result was that of its being discarded for a time, and guaiac, sassafras, sarsaparilla and other plants were used with varying success for a time. It was not until about the middle of the sixteenth century that the internal administration of mercury was resorted to and, altho the abuse of the drug from its massive doses was productive of great harm, it was made extremely popular, the drug symptoms being supposed to be natural manifestations of the syphilitic poison. The first effort, then, as now, with the dominant school was to get rid of the primary sore or chancre, in their ignorance supposing that the cauterization of the sore was necessary to cure the disease, never realizing that the initial lesion was only the effort of kind nature to get rid of a poison that permeated the entire system of the victim from the moment of the impure contact with the poison, be it coitus or in the most innocent manner.

So to the present time the allopathic school have had nothing better with which to combat that dreadful disease, syphilis, than mercury, internally and externally administered, and the iodids in combination with either mercury or potassium; they now claim radical cures if the treatment is kept up long enough, these being, together with quinine for the treatment of malaria, about the only remedies they have confidence to employ. It is to be regretted, however, that in many cases of these

"cures," conditions follow which are said to be due to syphilitic dyscrasia, proving that instead of curing the patient, the disease was hidden and was free to do its work in concealment, like a murderer lying in wait in ambush for his unsuspecting victim.

Those who have given study to the action of similars know that there is a better manner of treating syphilis. They know that mercury is frequently indicated in the course of the disease but also know that to be curative it must encounter the symptoms that indicate it and cannot be expected to cure all cases. The individual must be taken into consideration and the drug chosen to fit the case at hand. The primary sore ought not to be treated with external applications, cleanliness being all that is necessary, and it should be understood that the sore is a valuable signal to guide the physician as to the progress of the disease toward a complete cure.

As an illustration will serve to give force to the argument that remedies prescribed upon their homœopathic indications are safe and sure, much better than any extended dissertation upon the subject, I will ask you to note the following recital of cases from practice:

The first case will serve to illustrate something of the irregular type which we frequently encounter.

CASE I.—The patient is a married woman very intelligent, occupies a prominent position in society and knows what she is suffering from. Two years previous she began to feel badly and was treated by her physician for what he supposed was malaria, chilly sensations, followed by high fever, being noted for some time. No primary sore was ever found but the characteristic secondary cutaneous eruption appeared a few weeks later, actual dates are not to be had, and then it was diagnosed as syphilis. Her husband having confessed to a chancre made the diagnosis clear. Altho the patient was accustomed to have homœopathic treatment, she now fell into the hands of various allopathic practitioners for some time, and had the classic treatment, consisting of mercury and the iodids, until she became a physical wreck from their abuse. During this time she developed buboes and many mucous patches upon the mouth and pharynx, and suffered great deal of pain. Her stomach rebelled against the doses of medicine that were prescribed for her, till finally she refused to take any more, and for several months did not take any medicine at all. When I first saw her she came for relief from complete nasal stenosis, which had persisted for several weeks. An examination revealed severe ulceration of the mucous membrane covering the septum on both sides, the right side

being entirely denuded the whole length of the cartilaginous septum, and on the left about half of the cartilage being exposed. The inferior turbinals on either side were much swollen, and some ulceration was present. Using a solution of cocain I was able to so control the tissues that I could make an examination and, to prevent contact of the tissues, I introduced a piece of soft rubber between the septum and the opposing tissues, using only a weak solution of electrozone locally for the purpose of cleanliness. There were present also several ulcerative points on the pharynx, one upon the posterior pillar on the right side and one on the left side on the posterior wall just hidden by the soft palate, the right side being the most affected. She had no appetite, and could not retain anything upon the stomach when she did force herself to eat. I at once placed her upon Bovinine, given in water first and then milk, as she could take it, and kept her in bed constantly. Under this treatment she soon began to gain in strength. Naturally of a hopeful disposition, she has become quite melancholy at times, and says that while she knows she will not do it, she thinks of ways of putting herself out of existence. Is apprehensive and fears to have even the nurse come in the room. Throat becomes so dry in the night that she cannot sleep when she otherwise might. Cramps in the muscles of the calves at night. Fearful dreams at night. Great sensitiveness to cold. Considering the fact that she had taken so much mercury, and with the above symptoms indicating it, I prescribed aurum 6 every three hours for several days. As soon as improvement began to be noticed the remedy was discontinued and not given again until, a few days later, she took cold while out riding, and had a temperature of 101.6°, when a few doses were again given with good results. Improvement was gradual as far as the nose was concerned, and she was able to discard the nasal splints in about twenty days, breathing being sufficiently free for comfort. The pharyngeal conditions remained almost stationary, the ulcerations making little progress but not being healed. This lasted for about six weeks, her physical condition having been very greatly improved, but she then developed a severe neuralgia of the face on the right side, affecting the teeth of that side and lasting from 2 to 6 p. m. usually, but likely to appear in the morning also. Syphilinum 200 was given in solution, three doses at intervals of three hours, with the result that the pain did not appear at all for mainy days, but four days afterwards the palate became the seat of inflammation, and the next day a well developed gumma was seen, which broke down at a small point the

following day. This was located over the hard palate in the median line about half an inch posterior to the teeth. No medicine was given, and the ulceration progressed slowly for ten days, when she visited some friends, spending the entire day in social pleasures and returned completely exhausted. The next day the ulcerations were all aggravated, and in twenty-four hours a perforation of the septum appeared. A consultation was had and lachesis was prescribed on the following symptoms: Aggravation after sleep, especially the mental symptoms; disgust for alcoholic stimulants, altho she had previously been very fond of them; purplish swelling over the nose, erysipelatous in appearance, tender to the touch and hot flushes over the body without sweat. One dose of the 200th was given with some relief to all of the symptoms. Another dose was given ten days later when there was a slight aggravation succeeded by a further amelioration. A week later one dose of lachesis 1000, was given, which was followed by a distinct aggravation, especially of the hot flushes, but was followed the next day by a much better feeling. No change in the appearance of the ulcerations. Three weeks later, no medicine having been given in the interval, lachesis 6, was given, three doses, and at once there was an improvement noticed in the appearance of the ulcers, and in four days there was not a bit of soreness in the pharynx or the palate, all being entirely healed. The nose was much improved but not free of ulceration. It became necessary that the patient should leave the city at this time, and she has not been seen by me for two months, but from what I have heard from the physician under whose care she has been, there has been no return of the pharyngeal symptoms. The nose, however, has been sore, and I am inclined to think that there are sinus complications at present, but hope to have an opportunity to examine the patient again before long.

My object in reporting this case, while I cannot show a perfect cure as yet, is to show the rapid action of the homœopathic remedy as was evidenced when the ulceration of the pharynx ceased under lachesis. I have never seen lesions disappear more quickly under massive doses of potassium iodid, which sometimes acts with great rapidity. Lachesis had been given in the higher potencies, every time showing some aggravation immediately after the administration of the remedy, proving that it was the similimum, but when the lower potency was given it acted like magic, all the soreness, which had been very great, disappearing in less than twelve hours, and the healing was complete in four days. Other remedies will be needed to complete the cure, and

it may be possible that we will not be able to choose the right one, but if the opportunity offers we hope to continue the study of the case, trusting for good results.

Primary lesions do not often come under my notice, or at least not until the case has been complicated by cauterization, but I am able to report a case of syphilis cured homœopathically with slight secondary symptoms, thru the courtesy of Dr. R. F. Rabe, whose case it was, and my report is transcribed from his case records.

CASE II.—Mrs. X., seen June 9, 1903. Chancre on chin; accidental inoculation from husband, who had the same on his chin, but not diagnosed, and was followed by the usual secondary symptoms. Chancre of Mrs. X. was of seven weeks' duration, indurated edges, yellowish base, size of a fifty cent piece, surrounded by a red inflammatory area. Submaxillary glands swollen, throat sore. General aggravation at night. Had received mercurius solubilis 30 and 200, one dose each, at intervals of three weeks with very slight relief. Throat now aggravated, burns like a hot iron; mucous patch on right side. Pain extending to ear and down neck to clavicle. Submaxillary glands still swollen. Secondary roseola on skin of trunk and limbs. Pain < right side. Chancre discharges a yellowish pus from center; is a trifle softer around the edges. ℞. Mercurius iodatus flavus 200 (B. & T.), one dose.

June 16. Much relief. Throat much relieved and chancre healing. Glands smaller. Placebo given.

June 28. Throat almost well. Chancre almost healed. Roseola fading. Placebo.

July 6. Chancre healed; nothing but a hard lump remaining. Throat a little aggravated on right side and glands more swollen. ℞. Merc. iod. flav. 500 (B. & T), one dose.

July 16. Throat entirely well. Submaxillary glands much less swollen. Placebo.

August 7. Lump on chin gone and discoloration fading. Placebo.

September 15. Two small ulcers on inside of cheek. Placebo.

September 29. These ulcers refuse to heal, but are not very sore. ℞. Merc. iod. flav. 45m. (Fincke), one dose.

October 15. Ulcers healed. No symptoms. Placebo.

May 14, 1907. There have been no syphilitic symptoms since and no discoloration or scar visible at site of chancre. No hair was lost. Time of cure. four months.

If we can once learn to believe that homœopathy presents a better

and quicker manner of curing syphilis than any other, we will not resort to the methods that have been tried and retried for centuries with disappointment. We must not think that we have prescribed homœopathically merely because we have given a remedy that is said by the text books to be valuable in such cases, but must work out the case carefully, using our repertories and trying to be sure that we have arrived at the similimum. Let me also say that, if we have a feeling that we are not able to select the remedy to our satisfaction, we should not hesitate to call to our aid a specialist in homœopathic therapeutics, just as we expect to be called in to aid the general practitioner when our specialties are involved. It will redound to our credit and to the school we represent.

115 East 71st Street.

DISCUSSION.

R. F. RABE (New York): It has always seemed strange to me that so many of our colleges have taught that when it comes to syphilis homœopathy is at fault, and that this disease should be treated on old school lines. It is, in my opinion and according to my experience, a mistake to look at the matter in that way, for I consider homœopathy to be fully able to cope with all the manifestations of this dreaded disease.

Hahnemann has told us that the manifestations or chronic disease may be divided into psora, syphilis and sycosis, or their combinations. If we study the subject and learn the signs of these great miasms we will be able to classify our chronic cases into one or the other of these, but first we should ask ourselves the question—What is disease? I believe Hahnemann's explanation to be the true one. It is that disease is a disorder of the vital force, a distunement or disturbed harmony. The altered tissue is not the disease (which is invisible), but it is rather the result of the disease—*i. e.*, pathological end product. To treat diseases, according to this conception, our selection of the remedy should not be based upon the pathological state but upon the disordered vital force which precedes and causes the pathological state, and is expressed largely by the subjective symptoms of the patient himself.

If a patient comes to us with a malignant growth in the larynx, the growth is given a name as a fixed pathological entity. If our treatment is directed at this entity, *i. e.*, pathological state or condition, we are not treating the disease but the result of the disease, and we must many times fail in consequence. This is what surgery does and hence so often fails to cure. The disease result is assailed while the patient is overlooked. To treat disease homœopathically we must treat the patient in whom the disease manifestation occurs.

This being so, there is no more reason why syphilis cannot be cured by the homœopathic remedy than psora or sycosis. There is nothing peculiarly difficult about syphilis, *per se*. Mercury in some form is usually the homœopathic remedy for syphilis, tho not always. Hahnemann speaks of curing this disease with one dose of mercury in four weeks, but we must remember that in his time the diagnosis of syphilis and chancroid was confounded. We now know that mercury is not invariably the remedy any more than iodid of potash is. Syphilinum, the nosode, proved to be the remedy in one case, which I will cite briefly: A man who had had syphilis years before, treated allopathically and without recurrence, suddenly become troubled with spasms of the pharyngeal muscles. On trying to drink anything cold he would clutch his throat and fall to the ground. On account of these spasms he almost gave up eating altogether. He could only take a little warm drink. I gave him mercurius corrosivus without knowing of the syphilis at the time and with complete relief that lasted six weeks, when the spasms returned. He received hepar and later nitric acid, but without permanent relief. At this time either hot or cold food would bring on these sudden spasms. I took him to Dr. Garrison for examination, for there was fear on the part of the patient of the presence of malignant growth. Dr. Garrison found enlargement of the glands of the mucosa and marked hyperemia of the mucous membranes, but no sign of malignancy. He gave syphilis as the cause of the trouble. I then took him in hand and found these symptoms: Sudden, clutching pains in the throat on attempting to swallow; more particularly he described them as a smarting sensation exactly like pepper, such were his words without any prompting on my part. He was chilly, sensitive to cold weather, of stout build, and relaxed fiber; in short, a complete picture of the remedy capsicum. It was given, and in one month he was entirely well, but he stayed well for two weeks only, and this time a repetition of capsicum did not relieve. He now received one dose of syphilinum, and in seven months there has been no return.

This case was prescribed for purely on its symptoms alone, and seems to me to show clearly that homœopathy is able to cope with the manifestations of syphilis. Where the course of the disease has been very much interfered with by unhomœopathic medication there is a chaotic condition present, and I have found it very difficult to bring order out of such chaos. When we get the case in the beginning homœopathy can cure syphilis very speedily, often within four months.

J. B G. Custis (Washington): I am glad of the opportunity to give my testimony that homœopathic remedies are capable of curing syphilis. In the last few years I have yielded a little in a few cases to the extent of using nitroglycerin as a heart stimulant, and I have not been able to see that the effect was as good as if I had prescribed the homœopathic remedy alone. In syphilis I have never been tempted to use any other than the resources of homœopathy. I have watched the vaunted old school treatment, and I have not been able to see that it was as safe, as prompt or as sure as the little pills properly prescribed.

Syphilis has been a great bugbear—a terrible disease—by the mercurial treatment that it has received in times past. It is not such a terrible thing when allowed to run an uninterrupted course, and it is entirely amenable to the homœopathic remedy. Very often a case of disease of the retina or of the iris or some obscure disease of other parts of the body is attributed to specific sources when really it has nothing to do with it. Such cases are often and most unwarrantably filled up with mercury and iodid, producing a condition that is very hard to cure. Cinnabar and other forms of mercury, kali bichromicum and kali iodid are certainly very apt to be indicated in syphilitic disease, and it is because of the frequent indications for mercury that the old school are more successful in specific disease than in other kinds of ailments. Furthermore, I know from experience that a case showing mucous patches, sore throat and eye inflammation which would be cured by the smallest doses of mercury will be suppressed by large doses, and while the local symptoms may disappear, the general system has to suffer.

I remember one case in my early practice, before I had my diploma. I prescribed for her and I am thankful to say that she is still living, tho she gave me the worst scare I ever had. She had syphilis, been treated, gone from bad to worse, and finally been given up. I went over her symptoms and history, but was afraid to prescribe until I had seen my preceptor. He said go ahead, and that if she died he would sign the death certificate. Because of her peculiar pallor, demand for air and other symptoms I gave her lachesis on the start. She had been loaded up with mercurial preparations, and I found out that as long as I kept to vegetable drugs I was safe. She finally got well, and is still living owing to the action of remedies all as high or higher than the one thousandth.

Remember that there is no such thing as a specific for a disease, but there is a specific for each patient; that specific is the remedy indicated by the symptoms.

Syphilinum is not a specific for syphilis; not one of the nosodes is a specific for the disease which gives it its name. It is contrary to our teachings, contrary to experience, and contrary to true science to expect and look for specific remedies for disease, *per se*. The true way to cure syphilis or anything else for that matter is to individualize.

H. C. ALLEN (Chicago): I am happy to meet with this society of specialists because I understand that this society of eye, ear, nose and throat men is comprised of the best homœopathists to be found in any society of homœopathic specialists. As general practitioners we have recourse to you for help in diagnosis, prognosis and in general, especially mechanical, management. More than any other class of specialists, I think you meet with cases that are amenable to the action of the constitutional homœopathic remedy. As to the question which forms the title of the paper under discussion I should answer that the homœopathic remedy is the only remedy that can be trusted to cure syphilis, to eradicate its effects in any stage. The mistake of our school is

the strong tendency we all have to prescribe for the disease, for the diagnosis, instead of the symptom totality. It seems to be the inveterate tendency of the human medical mind to follow the antiquated teaching of traditional medicine. It is that that we should resist; we feel that we must prescribe for syphilis because allopathy does—use remedies that are good for syphilis—instead of selecting a remedy called for by the symptoms of the patient. There is no specific remedy for syphilis nor for cancer nor for tuberculosis, as has just been said. It is a fact that mercury is very frequently indicated in syphilitic cases. It is equally a fact that mercury may ruin a case of syphilis so that it can scarcely be cured at all; this is the daily experience of many specialists.

Hahnemann says in his "Chronic Diseases" that when mercury is indicated in a case of syphilis, a few doses of the best preparation—mercurius solubilis 30—will cure, but if it does not it is because that patient is deeply psoric. Then you must stop the mercury and remove the psoric condition first. After that the mercury will cure the syphilis.

Syphilinum will sometimes be necessary in the same way to remove a syphilitic miasm from a case that does not suggest syphilis at all by its symptoms, as in the lachesis case related by Dr. Rabe. Because the allopaths use mercury for syphilis is no reason why we should do so. I sometimes tell my students to first find out what the allopaths are doing for a case and then it will be safe to do just the opposite; it will be more successful. Surprise has been expressed that syphilis should be eradicated from the system by a single dose of anything. Why not a single dose? Let me ask how many doses of syphilis did the patient get? Is not a single dose of syphilis enough to last the patient for years, if not a life time, going thru a regular course and apparently as vigorous in its action after a number of years as it was at first? Why then should we be surprised at the efficacy of the single dose? The best successes that you will get will be from the single dose of the homœopathically indicated remedy. Lachesis cured an undoubted syphlitic patient, yet in its provings it never produced syphilis in the healthy. With Hahnemann chamomilla cured fig warts, yet it never produced warts of any kind in its provings. Let us return to Hahnemann's principles and we will never regret it.

FRED. D. LEWIS (Buffalo): A single dose has been spoken of as working a cure, and is supposed to do no harm if it does no good. If however the proper remedy in a high potency is given repeatedly, does that do any harm? Suppose it is given every night for a month or a week? I have a case under treatment in which I am giving psorinum 2000, two disks each night on retiring. I am pretty sure that it is doing good, but can the persistent use of it do any harm?

SECRETARY WEAVER (Philadelphia): In syphilitic cases treated homœopathically, how soon would you allow the patient to marry?

D. A. MACLACHLAN (Detroit): Since the recent interest in and development of the opsonic method of investigation, its bearing upon the Hahnemannian prescription has been quite evident to me. By com-

paring the symptoms which the Hahnemannian is in the habit of using for the selection of the remedy and the repetition of the dose with the opsonic methods it seems that a lot of light would be thrown upon the matter, and it would go far to prove that the repetition of the dose according to homœopathic theory is correct. It seems to me as if some investigation along these lines would be profitable. In my own practice I have not been able to satisfy myself that the single dose is the best way. I use the low potencies and give repeated doses.

DR. GARRISON: In reply to Dr. Lewis' question as to whether the repeated dose might not be better in some cases than the single one, I believe that there is more harm done by giving too much medicine than by too little, and that this applies alike to the attenuated remedy and the crude drug, altho there is much greater danger from the latter. In all cases we should carefully observe the action of our remedies, and as soon as the beneficial action ceases the dose ought to be repeated. Patients differ greatly in their susceptibility to the action of remedies. Replying to Dr. Weaver, I believe that in specific disease, the patient should not be permitted to marry until at least two years have elapsed without any symptoms of the disease returning, and that too without any of the popular remedies having been used during that time. It would be a fruitful field for investigation, and would pay someone to take up the relation between the action of the homœopathic remedy and the opsonic index of the patient. I believe that it would be found that the opsonic index would be raised when the properly indicated remedy was exhibited.

MALIGNANT TUMORS OF THE LARYNX: OR, OBSERVATIONS ON THE MANAGEMENT AND TREATMENT OF CANCER OF THE LARYNX..

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New York.

THE two varieties of malignant growths usually found in the larynx are the epithelioma and sarcoma. They may form in any part of the larynx, but are most frequently seen upon the ventricular bands or the vocal cords. I do not feel that I would be justified in taking up your time in reviewing the many theories as to the origin of cancer which have been exploited within the past few years. I believe, as do many authorities, that all cancers begin as benign growths, and that the change in their character is often due to injuries, operations and irritations. I am of the opinion that frequently a non-malignant growth in the throat is transformed into a malignant tumor by improper or too much instrumentation.

For further information as to the cause of cancer, I would refer you to the very complete paper by Dr. Dieffenbach on the observations of the etiology of cancer, published in the Transactions of the American Institute of Homœopathy for 1906.

In the last twenty years I have had an opportunity to see and treat a number of cases of cancer of the larynx, and time and again I have realized how helpless I was to arrest the progress of this disease, or even to make the patient comfortable for more than a short time. During this period many new agents for the cure of cancer have been brought to our notice, and time and again we have been almost led to believe that the cure for this dreaded disease had been found.

Operative procedure for cancer of the throat has been disappointing; the percentage of cures, even in total extirpation of the larynx, is very small. We must bear in mind that all varieties of cancer present varying degrees of malignancy, and it is possible that the cases reported as recovered were those of the milder type. For the destruction of cancer, the X-ray, radium, various drugs, serums and toxins have been tried and found wanting.

In the last few years new agents have been brought to our notice in

the discovery of trypsin and amylopsin for the treatment of cancer, and it was supposed that at last a reliable cure had been found. While these remedies have been disappointing, there are some who still cling to the hope that a valuable agent is within our reach and that, when the proper dose or method of applying it is found, better results will be obtained.

In the early stages of malignant tumor of the larynx, the symptoms are somewhat the same as those of a benign tumor; the well marked symptoms of cancer, such as cachexia and rapid loss of flesh, are not present at this time. A close observer may notice that there is a constant and slight increase flow of saliva. If the growth is intrinsic, there may be some pain and difficulty in swallowing, therefore in the early stage we have nothing to guide us but the microscope, and this sometimes will lead us astray. It is a great question whether excision of a portion of the growth for microscopical examination in order to establish the diagnosis is justifiable, because I know as a rule the growth of the tumor is hastened thereby. This should never be attempted unless the surgeon is prepared to perform a radical operation as soon as the diagnosis is made. Statistics will show that only in the very early stages of the disease can we hope to obtain from this method of treatment a permanent and complete cure.

In the early stages of malignant tumor it is very difficult to distinguish it from a simple papilloma, and if only the upper portion of the growth is removed the microscopical examination will be negative.

In order to get at the cancer cells we have to go deeply into the tissue; this will no doubt establish the diagnosis; but the instrumental irritation will change an inactive growth to an active one.

To verify the statement I have made that a cancer may remain in an inactive state for a long time and only show its malignancy when irritated I cite the following cases:

Fifteen years ago, when in general practice, a patient came to me with what appeared to many an indolent ulcer, and gave the following history: He had on the left hand, near the last joint of the thumb, a growth about the size of the head of a lead pencil. He described it as looking like a black wart, and said that it had been on his hand as near as he could remember for seven or eight years. One Sunday afternoon, not knowing what to do with himself, he took his penknife and picked off the top of this growth. The next day he noticed a slight inflammation around the tumor. He tried simple remedies, and about three weeks later consulted me. It had then grown to the size of a

five cent piece, and appeared to me something more than an ulceration. I stated to his wife that I believed it to be a cancer, but would like to have some one consult with me who had had more experience. He consented to go with me to a certain physician in New York who, after examining it, pronounced it not to be a malignant growth, but an indolent ulcer, and stated that by treating it in the way he recommended it would heal in a short time. The growth was treated along this line, but it kept on increasing in size, growing worse rapidly. Not being satisfied with the treatment the patient consulted one doctor after another, but with the same results—they all however claiming it was an ulcer. He was finally persuaded to go to Dr. Fowler, cancer specialist of New York, who pronounced it a cancer, and advised an operation at once. The hand was amputated above the wrist joint, then a second amputation was made at the elbow joint. He had no further trouble until seven months later, when he complained of pain in the right side of the throat. They again consulted Dr. Fowler, who said that he did not treat diseases of the throat, and he would have to refer him to a throat specialist. They then stated to Dr. Fowler that they would prefer to go back to the first physician who pronounced it a cancer and who was giving special attention to diseases of the nose and throat. The growth was in the right ventricle of the larynx, involving the ventricular band. This patient was treated by me up to the time of his death.

The second patient was in a sanitarium for several months with aphonia and was treated for laryngeal tuberculosis. They were making applications of lactid acid and he was doing fairly well, but the improvement was not as rapid as he wished therefore he was brought to me for an examination. I found covering both vocal bands an irregular growth which to all appearances looked like a simple papilloma. At this time the tumor did not have an angry look, nor was there any infiltration of the surrounding tissue or increased flow of saliva which is usually a prominent symptom in cancer of the throat. I decided to remove the growth, and removed it very thoroly, as it had increased so that it interfered with respiration. A specimen of the growth was examined and was pronounced an epithelioma. Two weeks after the operation the wound took on an angry look and there showed some infiltration of the surrounding tissue with glandular enlargement. The growth increased rapidly in size, and within five weeks was almost as large as when I first saw it, and showed its malignant nature. He returned to his home, which was in the South, and died soon after. I

believe in this case, had I only taken off the upper part of the tumor or just enough so that the patient could breathe more freely, and then treated the other portion of the growth with lactic or chromic acid, his life would have been prolonged and he would have had less suffering. Of course, submitting only the upper portion of the growth to a microscopical examination would have given a negative report and would not have established a diagnosis. I believe it is possible, and in this many authorities agree, that a simple papilloma can be transformed into a malignant tumor by improper or too much instrumentation. This is clearly demonstrated in the following case:

Miss H——, age about 36, who was suffering from aphonia, was sent to me for the removal of a growth which looked like a papilloma. The tumor covered the upper, lower and free edge of the vocal band and there was a pedunculated growth in the posterior commissure. With the history of the previous case fresh in mind, I decided to remove only the upper portion of the growth, then to destroy the roots with chromic acid. This was done with fairly good results, the growth gradually disappearing and the voice improving. She did not come for treatment as often as I wished and the improvement not being as rapid as she expected, decided to consult another physician. He removed a portion of the tumor; had it examined; report negative. He then removed more of the growth, I suppose going in deeper. which was also examined microscopically and reported as being an epithlioma. The patient soon after grew rapidly worse, necessitating a tracheotomy, and she lived but a few weeks.

The following case will be interesting on account of the history and the results obtained from the treatment: In 1892 Mr. E. presented himself for treatment, and gave the following history: For several weeks he had been expectorating blood periodically. Once or twice a week he would feel something catch in his throat, as he described it, like a bone which had been entangled in the cords. There would be a sense of choking, and this would be followed by a discharge of about a teaspoonful of blood. His father having died of cancer, made the case look still more suspicious. On examining the larynx, there was found a growth which was attached to the under portion of the vocal bands which, on expiration, would sometimes be forced between the cords; this was the cause of the choking attacks he had, and the bleeding. The growth would bleed easily when touched. This patient was examined by two physicians and both had doubts as to the character of the tumor. The upper portion of the growth was removed, and then

the rest of it was destroyed by frequent applications of chromic acid; the patient using at home during the treatment, by means of a spray, the fluid extract of thuja. The patient is still living and without any evidence of the growth returning.

In the year 1905 Miss R. was referred to me by a surgeon in New York who had a year previousy operated on her for cancer of the breast. She complained of pain on the right side of the throat and aphonia, which had been of several weeks' duration. On examination, I found on the right ventricular band extending to the right arytenoid a growth dark red in color which showed at one point commencing ulceration. I did not remove any portion of the tumor, but decided to treat it by local applications. I treated this patient with applications of trichloracetic acid and a mixture of bryonia and thuja, having her use at home three times daily thuja oil by means of an atomizer. Soon after this treatment was commenced the ulceration healed and the growth gradually disappeared. The voice was restored to its normal condition and there has been no return of the trouble up to the present time.

In April of this year Miss M. came to me for treatment. She had been suffering from aphonia for over a year, and had been under the care of two physicians for the past six months. There being no improvement in the voice and there being some interference with respiration, she was referred to me for examination and treatment. I found on examination a growth which almost filled the glottic opening and was attached to the upper, lower and free edge of the right vocal band. It was hard, bright red, and had every appearance of a malignant tumor. I removed the upper portion of the growth so as to improve her breathing, and treated the remainder of the tumor with applications of chromic acid and bryonia and thuja. The chromic acid was applied once a week and the bryonia and thuja twice a week. She is also using at home the oil of thuja by means of the atomizer. At the present time most of the growth has been destroyed and the patient is doing well; I expect that her voice will soon be restored to her. Some writers, Kyle and others, tell us that escharotics must be carefully avoided, as they only irritate and do not have any curative properties. I am willing to admit that I have found nothing that will cure cancer, but I know as a fact that applications of chromic and lactic acid do not irritate when properly applied. In using chromic acid only a small crystal should be fused on the probe and only a small area of the growth treated; in this way the patient's life is prolonged, there is less suffering, and a benign tumor which might from instrumentation become a malignant, may be cured.

I believe if we are to make any advance in the treatment of cancer of the throat it must be by the injection of some remedy or by the internal and local application of some drug, and not by surgical procedure.

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DISCUSSION.

THOMAS L. SHEARER (Baltimore): As this subject is one that would require a good sized book to contain all that could or should be said about it, I must necessarily limit my remarks to a few points in diagnosis and treatment. In the first place, then, Krishaber's classification of malignant growths of the larynx considers tumors that arise from the true and false cords, ventricles and the subglottic space as "intrinsic;" those originating from the interarytenoid space, the esophageal side of the larynx, the epiglottis and the aryepiglottic fold as "extrinsic." The value of this distinction is readily appreciated when one considers that in the intrinsic variety the disease, at the beginning, remains a local one; this is owing to its location within a cartilaginous box, from which the lymphatics have a poor connection with the neighboring glands in the neck. In many cases of laryngeal growths the greatest difficulty is experienced in deciding as to the question of malignancy. If we wait until the classical symptoms—such as cachexia, enlarged glands, loss of flesh, dyspnea, fetid breath, blood stained expectoration, hæmorrhages, pain referred to the ear and which is worse on swallowing—are present, we shall have passed the period at which surgical interference holds out the best prospect of cure.

In the vast majority of these growths, hoarseness is a symptom noticed both by patient and physician at an early stage. As "hoarseness" is a symptom of many pathological conditions of the larynx—such as chronic laryngitis, tuberculosis and syphilis of the larynx, pachydermic laryngitis, gouty deposits, benign growths, paralyses—we must most carefully consider the possibility of each, and endeavor by exclusion to arrive at a diagnosis as soon as the facts enable us to do so. Gerhardt considers a chronic hoarseness in middle or old age and without cough as suspicious.

Semon has formulated the following rule: "If the vocal cord, from which a suspected laryngeal growth springs, shows at an early period of the disease a defect of mobility other than that due to mechanical impaction of the growth in the glottis on phonation, this sign is almost pathognomonic for the malignant character of the tumor. If however this sign should yet be absent when the case comes under observation, such negative evidence does not by any means exclude possible malignancy." This sign of "lagging" on the part of a vocal cord during an attempt at phonation should always excite us to suspicion and watchfulness.

It is impossible to lay down exactly the appearance of these growths

as they vary so much in color, consistency and location; but briefly we may summarize as follows: The opaque or chalk like kind are more frequently found in the epithelial variety on the vocal cords. The reddish or yellowish ones are often of the diffuse variety on the vocal cords. The grayish color is at times noticed in the diffuse form of the cauliflower variety that arises from the bands, the ventricles or wall of the larynx. The color of the sarcoma is more usually a light yellow with a smooth surface.

Moritz Schmidt has modified the classification of Fraenkel and arranges the carcinomata as follows: 1st. The polypoid form on the vocal cord, often resembling a fibroma. 2d. The diffuse form on the vocal cords, presenting a thickened, irregular or nodular surface. 3d. Either of the above forms, or a combination of the two, situated elsewhere than on the vocal cord and resembling more often a cauliflower-like growth. 4th. The ventricular form. 5th. That form, the origin of which is deep seated.

The benign growths, as a rule, have no tendency towards infiltration like the malignant ones and grow towards the lumen instead of into the tissues, as do the latter. The combination of cancer in a tuberculous or syphilitic person is certain to render a prompt, early diagnosis most difficult. Not the least annoying is the fact that the post mortem examination or a thyrotomy may disclose a far larger growth than was visible with the laryngoscopic mirror.

If a laryngeal growth is of a suspicious nature, should we resort to a microscopic examination of a fragment obtained by endolaryngeal removal? I think that one should obtain a portion of the growth for examination only under three conditions: (*a*) When the operator has sufficient skill to do so without injury to the neighboring parts; (*b*) when a fragment from the deepest part of the tumor can be obtained—otherwise the microscopic finding will probably be negative and misleading; (*c*) when the case has been fully placed before the patient and permission obtained for a thoro operation, if the surgeon considers it necessary.

Another question of importance demands an answer from us: "Does removal of a fragment for examination or do endolaryngeal operative measures convert a benign growth into a malignant one or hasten the process of growth of a tumor already cancerous? There can be no doubt about the effect of irritation—whether chemical, caustic or instrumental—upon malignant growths, for the history of cancer of the lip, breast, tongue, face, stomach and scrotum includes irritation of some kind stirring into activity the already existing elements of malignancy.

The other part of the question is not so easily answered as would appear from Dr. Teets' paper. This observation applies particularly to the laryngeal cases. How often do we hear that a patient has a small growth—a papilloma—on the left vocal cord; that Dr. so-and-so had removed a part of it with forceps; that later he had removed another portion, and so on. The first part did not yield any microscopic evi-

dence of cancer, or the second part, but the third removal did, and "now the growth is larger than ever." This is cited as a case of transformation of a benign to a malignant growth thru the irritation of endolaryngeal instruments. As a matter of fact, the probability is that the growth was already malignant at the deeper portion and was concealed under the guise of a papilloma.

I do not believe any irritant can develop a cancer unless the actual elements or possibly an organism is dormant in the tissues, just as tubercle bacilli may enter the bronchial glands and lie dormant for years until unduly irritated. From these statements it is readily seen that I do not believe in endolaryngeal attempts at removal of any growth which presents the least possibility of malignancy; if, to strengthen the diagnosis, a fragment must be removed deeply from the tumor it should be merely a preliminary to prompt surgical removal afterwards.

As year after year of experience with laryngeal cancers accumulates, the results of endolaryngeal removal of these growths make a poorer showing. It is only necessary to glance at the report of Sendziak's to realize this forcibly. Of these thirty-two cases operated on by this method, there were 40.7 per cent. of known relapses, and 34.4 per cent. unaccounted for. Why, then, in the face of such results, should we persist in employing endolaryngeal methods, with the uncertainty of being able to remove all of the growth and with a decided likelihood of recurrence?

The only satisfactory way to do this is by thyrotomy. Semon has published a large number of cases treated this way and has had 85 per cent. of cures. But this operation must be restricted to the early stage of intrinsic malignant diseases; for this purpose, an early diagnosis is indispensable. The operation must be thoro—removing a sufficient area of healthy tissue around the growth. Ten years ago Semon pointed out that, owing to the peculiarities of the lymphatic supply of the larynx, intrinsic cancers of that part occupy an exceptionally favorable position with regard to the question of recurrence after radical operation, and that when one year has elasped without recurrence, the patient may be justly regarded as having passed the critical period. His experience since then confirms this view of the subject. Fortunately the extrinsic variety is by far the rarer of the two by which the larynx may be attacked. However should the larynx, when opened, disclose the disease more extensive or advanced than supposed, or should the patient on our first examination reveal marked extrinsic involvement, such operative procedure should be indulged in as to eradicate entirely all evidences of the disease, even if partial or complete laryngectomy with removal of the neighboring lymphatic glands must be performed.

Total laryngectomy is one of the most mutilating operations in surgery, and yet Professor Gluck, who has performed this operation many times, says that owing to the progress in technique cases in which the pharynx, esophagus and tongue were affected, together with the larynx,

had increased considerably, the operation being thereby rendered more serious still. Notwithstanding this, remarkable results have been obtained and Gluck assures Semon that patients in whom not only total extirpation of the larynx, but also a resection of the pharynx had been performed, had survived the operation many years in a good state of health. Professor Paul von Bruns, in the statistics of all total laryngectomies performed since 1890, presents the following table:

Cure lasting more than five years	10%
Cure lasting from one to three years	16.6%
Cure lasting less than one year	28.9%
Recurrence	24.5%
Death owing to operation	19%

To the average surgeon—whether general or laryngologist—total laryngectomy must appear a formidable and dreaded procedure. With a man like Gluck, who haas performed this operation so frequently and therefore with enormous experience in technique and the general treatment of such cases, the patient undoubtedly stands a better chance than with a surgeon who seldom and at long intervals encounters the necessity of such work. When however such a step as total removel of the larynx with the neighboring glands is required, the patient is often left in a pitiable condition; frequently he can produce no articulate sounds and very few people will tolerate an artificial larynx for any length of time—such difficulty in eating is experienced as to necessitate in some cases the use of a tube and an enforced isolation at meals. To crown all of this wretchedness, there is the ever present dread of very likely recurrence. Is it any wonder that some of these unfortunates commit suicide? This picture imposes upon every laryngologist the imperative duty of early recognition of a laryngeal condition when it is malignant and an early thyrotomy as giving the best chances to the sufferer.

As regards medicinal agents, I know of only one reliable case of laryngeal cancer—epithelioma—being apparently cured by hypodermatic injections of trypsin. The case is recorded by Dr. Homer Dupuy, of New Orleans, and the particulars in full can be obtained from *The Laryngoscope* for May, 1907, to which I must refer those that are interested in this subject. It required 55 ampoules or 1100 minims of trypsin—hypodermatically—and 290 capsules or 800 grains of holadin (extract of pancreas)—by mouth—to produce complete disappearance of the growth. Each injection consisted of 20 minims of trypsin hypodermatically in alternation in the right and left arm. Sometimes the trypsin was discontinued and the extract of pancreas given per mouth for a while; then the injections again resumed. This case was observed and the results controlled by five laryngologists and a competent pathologist, the treatment lasting for three months until the growth disappeared. Time alone will show whether the cure—so brilliant and satisfactory—will be permanent.

J. A. Campbell (St. Louis): I had a case some years ago that

proved very interesting to me, as it turned out. A man came to me with a growth in the larynx; it had the appearance to me of a polypoid growth, but the man would not allow any operation. He denied ever having had specific disease, nevertheless I put him on the iodide of potassium treatment, and he got perfectly well, every vestige of the growth disappeared. There was no notch in the vesicular bands.

DR. TEETS: Notwithstanding Dr. Shearer's statement, I believe that a great many nonmalignant growths are and may be transformed into malignant growths by overinstrumentation. It has been clearly proven to me that that is the case. Hence I am very cautious about taking a specimen out of a growth for examination in order to satisfy my curiosity.

VISUAL QUALIFICATIONS OF RAILWAY EMPLOYEES.

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THE growth, during the last twenty years, of traffic demands has completely revolutionized, not only railroad equipment, but also methods of handling trains. The demands for greater speed and the necessity of increase in the number of trains over a given unit of track, have developed new methods in operating such trains. The perfection of these operating methods has of necessity increased the demand on the perceptive faculties of those employed as train operatives.

The necessity for a certain standard of visual qualification and a perfect perception of colors is recognized by practically all railroads, who are demanding that their employees, engaged in any way in the operation of trains, shall be examined for visual acuity and color perception at certain intervals. The earliest work along this line was done in Europe, especially so far as color perception was concerned.

In 1875 a serious railroad accident in Sweden was shown to be due to a defect in color perception in an employee. This resulted in the enactment of a law in that country requiring that all railroad employees be tested as to color vision.

In this country the Pennsylvania railway adopted a set of rules and standard governing the visual qualifications of their employees in 1881.

The use of position signals (semaphores) in the operating of trains in the daytime has made the necessity of qualifications in visual acuity just as important, if not more so, than that of color vision in connection with the operation at night when colored lights are used.

The demands in this connection were more fully recognized, when in 1895 the American Railroad Association adopted a complete set of rules governing the determination of physical and educational qualifications of employees. Under the head of physical examinations for visual qualifications, the following standard and rules were adopted:

CLASS A.—Enginemen, conductors, train baggagemen, brakeman, in yard and road service.

ENTRANCE TO SERVICE.—$^{20}/_{20}$ in one eye and not less than $^{20}/_{30}$ in other eye, tested without glasses.

PROMOTION.—The same.

CLASS B.—Signalmen, signal repairmen and telegraphers.

ENTRANCE TO SERVICE.—$^{20}/_{20}$ in one eye and not less than $^{20}/_{40}$ in other eye, tested without glasses.

PROMOTION.—The same.

CLASS C.—Other employees in engine, train or yard service, car and engine inspectors, bridge and track foremen.

ENTRANCE TO SERVICE.—Not less than $^{20}/_{30}$ in one eye and not less than $^{20}/_{40}$ in other eye, without glasses.

PROMOTION.—The same.

CLASS D.—Crossing signalmen.

ENTRANCE TO SERVICE.—$^{20}/_{40}$, both eyes open without glasses.

The standard for re-examination is left to be determined by each road as shall be best suited to its conditions.

In case of failure of a candidate for re-examination under Class A, or for entrance to service, promotion or re-examination under Classes B, C, and D, to pass the tests without glasses and farther expert examination shows that with glasses the tests can be met satisfactorily, the acceptance of the candidate is optional.

The rules give in detail the method for testing for acuteness of vision and reading vision. Where mistakes of not more than three letters are made in the twenty line, two in the thirty line, and one in the forty line, it is considered satisfactory. Standard test letters of Snellen being used. In the testing of color perception the simplified method of Holmgren's worsteds, containing forty skeins are recommended, and the method of employing the test given in detail. The skeins are tagged with numbers for purposes of recording. The similar skeins with even numbers and the confusion colors with odd numbers, or vice versa. It is sugested that if desired a lantern showing colored lights which can be varied in size may be used.

The period of time intervening between examinations is left to the discretion of each road.

A provision is made that in cases of employees who fail to pass on re-examination, after having been in employ of a company at least two years, they may be accorded a field test under service conditions. If they pass this test and shall be approved after examination by the company's oculist, they may be retained in service.

It will be seen that these rules are in the main merely suggestive for the reason that so much is left to the discretion of the individual roads in establishing a complete standard.

Of course, it is recognized that only the actual test of time in actual service can determine a standard that is safe and yet does full justice to the employees concerned. So undoubtedly time will show more or less change in the rules as adopted by the American Railway Association.

The Detroit and Mackinac railway, of which system the writer is ophthalmic surgeon, has adopted the following standard:

CLASS A.—Enginemen, hostlers (who handle engines on main track).

ENTRANCE TO SERVICE.—$^{20}/_{20}$ combined; not less than $^{20}/_{30}$ in either eye without glasses. Must not accept a plus 1.50 lens.

RE-EXAMINATION.—$^{20}/_{20}$ combined; not less than $^{20}/_{70}$ in either eye, or $^{20}/_{30}$ combined, and not less than $^{20}/_{40}$ in either eye without glasses. Glasses to be worn if combined vision can be brought up to $^{20}/_{30}$.

CLASS B.—Firemen, brakemen, trainmen.

ENTRANCE TO SERVICE.—$^{20}/_{20}$ combined, and in each eye tested separately. Must not accept a plus 1.50 lens.

RE-EXAMINATION.—$^{20}/_{20}$ combined, no; not less than $^{20}/_{40}$ in either eye without glasses. Same standard for promotion from fireman to engineman.

CLASS C.—Freight conductors, yard conductors, switch tenders.

ENTRANCE TO SERVICE.—$^{20}/_{20}$ combined, and in each eye without glasses. Must not accept plus 1.50 lens.

BY PROMOTION.—$^{20}/_{20}$ combined; not less than $^{20}/_{40}$ in either eye without glasses.

RE-EXAMINATION.—$^{20}/_{20}$ combined; not less than $^{20}/_{40}$ in either eye, glasses to be worn if vision can be improved.

CLASS D.—Passenger conductors, train baggagemen, yard masters, bridge foremen, track foremen.

ENTRANCE TO SERVICE.—$^{20}/_{20}$ combined; not less than $^{20}/_{30}$ in either eye without glasses. Must not accept plus 1.50 lens.

BY PROMOTION.—$^{20}/_{30}$ combined; not less than $^{20}/_{40}$ in either eye without glasses.

RE-EXAMINATION.—$^{20}/_{40}$ combined; not less than $^{20}/_{50}$ in either eye or $^{20}/_{30}$ combined, and not less than $^{20}/_{70}$ in either eye. Glasses to be worn if vision can be improved.

CLASS E.—Signalmen, telegraphers, station agents, stationmen, drawbridge tender.

ENTRANCE TO SERVICE.—$^{20}/_{20}$ combined; not less than $^{20}/_{40}$ in either eye without glasses.

RE-EXAMINATION.—$^{20}/_{30}$ combined; not less than $^{20}/_{70}$ in either eye without glasses.

CLASS F.—Crossing flagmen, gatemen.

ENTRANCE TO SERVICE.—$^{20}/_{40}$ in either eye without glasses.

RE-EXAMINATION.—$^{20}/_{50}$ combined; not less than $^{20}/_{70}$ in either eye.

The rules provide that all employees shall be re-examined every two years, and that all examinations of applicants and employees shall be made by a professional examiner. ' It is also required that all employees wearing glasses shall be examined once a year.

In testing for color vision, it is required that applicants be examined both with skein test and lantern test.

This standard is in the main the same as that used by the Erie railway and the New York Central lines. They differ to some extent in classification and rules, as the working conditions of the roads may require. It will be noticed, however, that this standard differs greatly from that of the American Railway Association. Not only in requirements but also in the classification.

The reasons for classifying as is done are several, and govern as well the difference in the standard.

The standard for entrance to the service is normal vision with absence of latent refractive errors (as is governed by the requirement that they must not accept a plus 1.50 lens), for it is considered that firemen and brakemen are men in training for enginemen and conductors. So the proficiency of the latter class will be directly dependent on the standard maintained in the class from which these men are promoted.

The standards for re-examination and promotion are lower than that for entrance. Due allowances being made for the trying work to which the men, especially firemen, are subjected, and it is recognized as well that the proficiency acquired from experience must be given its due consideration and no injustice done men who have spent the best years of their lives in a company's employ.

The importance of eliminating cases of latent refractive error is not recognized in the rules of the American Railway Association. The importance of this lies in the fact that frequently a man with one or even two diopters of hypermetropia will be able to read $^{20}/_{20}$ on entering the service, but with the advance of age and the relaxation of the accommodation from strain and physiological causes will necessitate their wearing glasses to safely distinguish signals.

While enginemen and conductors are permitted to wear glasses to

bring their vision up to a safe standard, it is much to be desired if this can be avoided by a more careful selection of men lower down in the service.

Another question to which due consideration must be given, is that of reduction of vision from fatigue. Careful tests have shown that very frequently enginemen with normal vision will show a reduction of 20 per cent. after a long and trying run, which will return to normal again after proper rest. This shows that sufficient acuteness of vision must be required of enginemen, at least, to insure a safe standard after allowing for such a possibility of reduction in vision.

The aim of railroads in employing efficient men in the various departments, is that they may be continued in such service as long as they live, and as well become more valuable in their respective positions not alone thru proficiency of experience, but also by the retention of their faculties. They want men whose ability to detect and properly interpret signals will be as good approximately after ten or fifteen years' service, as when entering the service.

An important point in the question of visual tests is that of the test cards, which in the majority of codes of rules is not carefully considered. The standard test cards of Snellen recommended are printed in 20, 30, 40, 50 and 70 foot sizes, with a more or less fixed arrangement of the letters, and can be readily purchased. Men coming up for examination who have a knowledge of a defect in vision can easily secure these cards, memorize the arrangement of letters and be able to readily call them off when examined. Again these cards in the 20, 30 and 40 foot size have but five or seven letters to a line, making it very easy to memorize the letters when the good eye happens to be tested first. Besides this, Association rules provide that a mistake of three letters on the $^{20}/_{20}$ line may be made and candidate still considered satisfactory. Where there are but six or seven letters in the line, it requires a proficiency of but 50 per cent., which makes the possibility of memorizing still less difficult. To overcome this, it is my practice to have a card on which the 20, 30 and 40 foot sizes have twelve to fifteen letters, in some cases letters being alternated with figures. A different card is used for each eye or else the applicant is required to read the letters forward with one eye and backward with the other, and is shown but one size of letters at a time.

In the question of color perception the requirements of the American Railway Association are that tests shall be made with the modified Holmgren worsteds of forty colors with a provision that a lantern may be used if desired.

Experience of a great many men in the use of these tests has shown that the Holmgren worsteds are not sufficient to insure perfect color perception on the part of applicants for employment. Recognizing this fact a number of roads require that all applicants shall be examined with both the skeins and lantern.

The lantern most generally used is that designed by Dr. C. H. Williams, of Boston, by which a series of colored lights may be flashed before the applicant either in pairs or singly, and the size of the light varied so as to correspond at 20 feet with the large opening, to a five inch semaphore light at 160 feet, and with the smallest to such a light at 1,250 feet. Experience has shown that in a great many cases an applicant will pass the test with the worsteds perfectly, but when given the test with the lantern, will show such mistakes in calling the lights as to demonstrate beyond question that he is an unsafe man to be employed. I have seen several cases which very clearly demonstrate this statement. I recall a case recently met with in which the applicant picked the colors perfectly without any hesitation, in the test with the worsteds, but when given the lantern test did invariably, when shown the red lights, call one of them white. The man was an unsafe man to be employed in the operation of trains, yet would have been passed as perfect if the lantern test had not been employed.

It is claimed by most writers on the subject that while the lantern is not designed to replace the Holmgren test, it is necessary in conjunction with it to insure the recognition of all dangerous cases.

The more I employ these two tests the more I am led to feel that there is but one practical test, and that the lantern.

While the Holmgren test may be useful in differentiating the particular form of color defect, we are met face to face with the fact that even if a man fail in the Holmgren test, should he show a perfect perception of the colors with the lantern—and this occurs not infrequently—we must admit him to be a safe man. On the other hand we have repeated demonstrations of the fact that a man may pass the Holmgren test and yet show serious defects with the lantern, so why should the lantern not be used as an exclusives test instead of as a confirmatory test, inasmuch as we abide by the results of such a test as a court of last resort.

The only advantage to be claimed for the Holmgren test is that in making general examination it is not always possible to have at hand a dark room with a twenty foot distance for making the lantern test. With the worsteds a test can be made any place where the light is

good. I am confident that time will demonstrate that the lantern is the only practical test to be depended on alone.

In the field test there are many things which make it inferior to the lantern. First, it can be only used at night, very elaborate equipment, and much time would be required to approach even in a slight degree actual working conditions in such a test. Second, atmospheric conditions, such as smoke, fog, dust and various conditions affecting the recognition of signals could not be simulated as with the lantern. Third, because of the more or less perfect conditions under which such a test would be given many men with defective color sense would but demonstrate their ability to detect colored lights by the luminosity of the light rather than by an actual impression of color.

The most dangerous man in this class is the chromic myope, who up to a certain distance has normal color vision but beyond which all impression of color is lost. These cases can not be detected by the Holmgren test nor to any degree of certainty with any lantern test yet devised.

In considering the visual qualifications of railway employees, it is well to bear in mind in this day of high speed, that a train traveling sixty miles an hour traverses a distance of eighty-eight feet a second, at seventy miles an hour over 100 feet a second, and that a signal should be recognized at, at least, half a mile (2,640 feet) in order to stop a train traveling seventy miles an hour within that distance.

301 Crapo Block.

RALPH I. LLOYD (Brooklyn): No one will disagree with the statement that the standard of vision for railway employees must be set by physicians who are familiar with railroad work. What little I know concerning railroads has been acquired at the rate of two cents per mile, or by the cheaper methods of conversation or sitting in an up-to-date signal tower. I feel that our profession has done a great deal to prevent accidents on railroads, and believe that accidents due to faulty vision are now few. A prominent railroad official rode in an engine cab from one of our large cities to another at a high rate of speed. He knew the location of the signals, and as an experiment tried to keep his eyes on the track and each signal. He missed quite a few signals in the 150 miles. It seems to me that most accidents are due to this same fault in human nature. The average American's nervous system is too heavily loaded and officials are too apt to feel that an order for the fireman to look out and call signals to the engineer is a sure cure of the stumble in the engineer's cerebration, without considering that this very order is adding too much to the already busy fireman.

Corporation officials should look upon the employee as a man and

not as a part of a machine. In many of our large cities there are tracks to suburban resorts over which both trolley and electric trains are run. In the summer time the traffic is heavy, and I doubt very much whether the employees of our city trolley services are tested very thoroly, and this is a question worth looking into.

W. R. KING (Washington): I have had no practical experience in the matter of testing the vision of railway employees, but I found the paper of great interest, particularly where it refers to the differences which arise in the acuity of vision during conditions of rest and fatigue. I have had some work to do among midshipmen, and my attention has been arrested by the possibility of the effect of using the eyes predominately for long distance, and also for close work, upon the vision in this railway service, and also in naval service. I have had, as I said, a number of midshipmen from the naval academy to test for defects of vision acquired since their entering the service.

Most of them go into the service with $^{20}/_{20}$ in both eyes, as the physical examination made at the time shows, and hence the defects that I found came on after admission and probably from the use of the eyes for long distances. They came to me, after from one year to two and a half years' service. In each one, of at least twenty instances, there was a pronounced defect of vision, either myopia alone developed or myopic astigmia. These defects seemed to have followed a change in the method of illuminating the study rooms where they spend a number of hours each day in close study. They informed me that the ceiling was rather high, with the lights well up in the air altho there was plenty of illumination.

It was probably too distant from their work, for since that change in the method of illumination there has been an increase in the number of men complaining of their eyes and seeking relief.

A number have been on the rifle team, and I had to give them glasses for that special work different from those used in ordinary routine work. I am happy to say that the two whom I fitted in this way had high scores in their rifle practice; with these glasses their vision was practically perfect. The thought has come to me that the acuity of vision at great distance so necessary at sea might be helped in this way.

TWO INTERESTING CASES: SARCOMA OF THE CHOROID; A PIECE OF STEEL IMBEDDED IN THE DETACHED RETINA.

WILLIAM McLEAN, M. D.

New York.

THE accompanying report of two recent cases occurring in the practice of Dr. A. B. Norton is deemed worthy of record and of interest for the following reasons; the first because the pathologist's report and the mounted specimen verify the diagnosis of sarcoma of the choroid in an early stage of the disease, made by a member of this society; and in the second case to the lucky chance that guided the knife in such a manner that the foreign body is so well shown in the mounted specimen.

CASE I.—The difficulty surrounding the early diagnosis of sarcoma of the choroid when accompanied by a detached retina and diminished tension is one of the acknowledged facts of ophthalmology. It is for this reason that special credit is due Dr. John H. Payne, of Boston, whose diagnosis made so early in the case has been verified by the subsequent progress, the report of the pathologist who made the microscopical examination, and also by the mounted specimen herewith presented. Miss G., age 41, was first seen by Dr. Norton on March 10th of the present year. At that time she was apparently suffering from an attack of acute inflammatory glaucoma of four days' duration.

The history of the case is as follows: Four days before, after having attended the funeral of an aunt the right eye suddenly became very painful. Nausea and vomiting ensued, accompanied by considerable prostration. The pain was so severe that she lost consciousness twice. The eye grew steadily worse for four days, when relief was sought from the oculist.

At this time the eye was intensely inflamed and chemosis of the conjunctiva was present; the lids swollen and edematous; the pupil was widely dilated and irregular in outline; the bulbus was very painful and sensitive to the touch; the tension was about + 3; in fact, all the external evidences of acute inflammatory glaucoma were present.

Intraocular examination was rendered impossible by the general haziness of the cornea and refractive media, the fundus reflex being entirely absent.

but since the other eye was beginning to show evidences of sympathetic trouble, enucleation was advised.

Like case 1, the operation was performed, and an uneventful recovery ensued. The enucleated eye was prepared for mounting, and when sectioned, the knife accidentally cut thru the detached retina immediately adjoining the piece of steel, which was found to be lodged in the ciliary region.

16 W. 45th Street.

DISCUSSION.

H. WELLS WOODWARD (Washington): The man who has had an opportunity to diagnose sarcoma of the choroid in the first stage, and failed, can appreciate the skill of Dr. Payne in recognizing the first sign of this formidable disease, also his ability in giving the correct advice to this patient, with an accurate forecast of what did happen. The report of this case would be complete if enough time had elapsed to state whether the woman lost her life by metastasis of the disease to the liver, or some organ, or whether she had fully recovered. The prognosis, or the chance of recovery, in these cases can be estimated by referring to the statistics.

Hirschberg, who directed the treatment in a large number of cases of sarcoma of the choroid, reports local recurrence in 2.5 per cent.; I take it to mean recurrence in the orbit. Metastasis in 41.5 per cent. Cures in 56 per cent. Dr. De Schweinitz reports cures in 25 per cent. to 30 per cent. This percentage, while smaller than Hirschberg's, is still worth fighting for.

The statistics that I have seen do not definitely prove that the early operation is more successful in saving life than the later one. Common sense, however, would dictate that not much time should be lost when the morbid process has reached the inflammatory or glaucomatous stage.

This paper teaches that great care should be made in the examination of the retina. If we find it detached and not undulating, we have evidence of a tumor. This evidence becomes positive if there is no history of myopia or injury.

When these patients come, as this one did to Dr. Norton, in the second stage with glaucoma and cloudiness of the media, it is difficult to determine without accurate history that a sarcoma with detachment of the retina is behind the high tension. I can see how it might happen in such a way that it would be improbable to tell whether the loss of vision just before a glaucoma was not due to a previous attack of glaucoma.

In these cases transillumination probably is of value. According to Swansy, a choroidal sarcoma is very opaque, so that while passing a transilluminator (Sachs lamp) over the cocainized sclera the pupil will not be illuminated while the lamp is in the region of the tumor, that is, it will not be illuminated to anything like the degree it is when on other parts of the sclera.

A. B. NORTON: That first case was a remarkably creditable diagnosis. It was disputed by specialists in Boston, but the accuracy of the diagnosis was fully verified by the microscopical examination of the enucleated eye.

The patient told of a sudden loss of vision in the lower half of the field of the right eye in June, 1906. This was followed in about ten days by complete loss of vision of the affected eye. There was no pain or other symptom at the time, aside from the loss of vision, and there had never been pain in the eye until the glaucomatous attack in March.

This history suggested that there was a detached retina in 1906 which, followed by glaucoma nine months later, indicated probable tumor of the choroid. As she at that time had consulted Dr. John H. Payne, of Boston, Dr. Norton communicated with him as to his record of the case, and received the following reply:

My Dear Dr. Norton:

Your letter relative to Miss G. is very interesting as it agrees with my forecast of the probable outcome of her case. I find by my notes that a diagnosis was made of a probable leucosarcoma of the right choroid. I examined her fundus carefully under euphthalmine and found a detached retina above that appeared like an organized growth. The tension was— 1. It seems that she first noticed some four weeks before she came to me a cutting off of the lower half of an object, then ten days later an entire loss of vision.

Her left eye at this time showed much choroidal hyperemia with tension normal. I am very positive that her right eye contains a growth.

Her visit was made June 27, 1906. As I remember it, the operation I advised was enucleation.

Very cordially yours,

JOHN H. PAYNE.

Further questioning brought out the facts that the patient had a tumor of the breast, which was removed by Dr. Emerson, of Boston, and later he performed an hysterectomy for uterine fibroma. Both of these growths were diagnosed by the pathologist as fibromata. Also

six years ago was afflicted with spinal meningitis with diminished vision, but a quick recovery of the vision followed.

The tentative diagnosis was glaucoma due, in view of the history, to intraocular tumor. The treatment instituted was instillations of a 1 per cent. solution of eserin every two hours, hot applications, and gelsemium 1x. Under this treatment the pain, swelling and redness of the eye decreased, the pupil was somewhat less dilated but the tension remained about + 3. Forty-eight hours of treatment failed to reduce the tension, so enucleation was advised.

The next day the eye was removed without complications under general anesthesia, the optic nerve being severed about ¾ of an inch from the globe. On examining the enucleated eye an ectasia about the size of a split pea was found on the superior anterior quadrant of the sclera about five millimeters from the corneoscleral junction.

The wound healed by first intention, and the patient had an uneventful recovery.

The eye was placed in formalin solution for hardening, and when sufficiently hard was frozen and cut in halves. One half was sent to the pathologist for diagnosing, the other I prepared and mounted in gelatin. The mounted specimen shows the detached retina extending forward from the optic disc to the center of the eye, then spreading out to the ora serrata. The lens has been pushed forward and slightly downward. Between the retina and the choroid is the tumor, which is firmly attached to the choroid.

For pathological diagnosis I will report the statement received from the pathologist.

"The tumor of the eye sent me for diagnosis was found to consist of numerous, partly round, partly spindle shaped, coarsely granular, nucleated corpuscles, varying in size to a moderate degree, some being small others rather larger. In many places these corpuscles are separated from each other only by a structureless basement membrane, while in others scanty fibers of myxomatous connective tissue separate the corpuscles. Scattered thru the tumor numerous variously sized masses of dark brown pigment granules are present, some of these masses filling the corpuscles completely. Around the tumor areas of hemorrhage are present, these also contain varying numbers of pigmented corpuscles. Diagnosis: Melanotic, small and large round and spindle celled sarcoma.

"The peri- and endoneurium of the optic nerve are both thickened to a moderate degree and infiltrated with a moderate number of inflam-

matory corpuscles. The myelin sheaths show a granular degeneration which has even attacked the axis cylinders in a few places. Here and there layers of coarsely granular nucleated corpuscles are found in small numbers, these have the characteristics of sarcoma corpuscles. Diagnosis: Inflammation, degeneration and commencing sarcomatous invasion."

CASE 2.—Mr. T., aged 22 years. Eighteen months previous to consulting Dr. Norton he was struck in the eye with apiece of steel, and in the patient's own words, "The eye was bloodshot for two weeks." He consulted an oculist in Washington, D. C., and received treatment. Afterward his vision of the affected eye gradually failed, and later he had some attacks of pain in that eye.

The following result was obtained with the trial case:

O. D., V. $^{15}/_{15}$. + .75 s. ⊂ + .50 cyl. axis 105° = V. $^{15}/_{10}$.

O. S., V. nil.

The ophthalmometer reading was:

O. D., + .50 axis 105°.

Intraocular examination revealed a detached retina, and on the nasal side a reddish brown mass, the diagnosis of which was a tumor or encysted foreign body. There was a peculiar congestive zone in the sclera surrounding the cornea which was indicative of a recent inflammatory process within the eye. While the eye was not sensitive,

OPHTHALMIC ENDARTERITIS.

Edema of the Retina and Optic Nerve, Greatly Reduced Vision, Loss of Red and Green Perception, Due to a Focus of Endarteritis in the Ophthalmic Artery; being a part of a Diffuse Endarteritis in a young woman. Recovery.

G. DEWAYNE, HALLET, M. D.*

New York.

IN his article on "Ocular Lesions Dependent upon Diseases of the Circulatory System" in Norris and Oliver's *Diseases of the Eye,* O. Haab says, in discussing embolism of the central artery of the retina, that "the anatomical diagnosis of obstruction of the vessels does not lie entirely between the question of an embolism or a thrombus, but also includes the question of endarteritis obliterans." He says he has not infrequently seen the latter condition contract the affected vessel in such a manner that an investigator could easily confound the condition with an embolus or a thrombosis, and that the central artery seems to have a predilection for endarteritis. In referring to groups of cases reported by several authors as embolic or thrombotic, he makes the statement that in not a single instance has convincing proof been advanced for these causes, and that the obliteration may have been from other (endarteric) causes. He quotes Raehlmann (*Vortschritte der Medicin,* 1889, s. 929) as having found, in a supposed case of embolus, a complete obliteration of the vessels by endarteritis. Sodato (*Archiv. di Ottalmol.,* 1895, Vol. II, p. 361) is quoted to the same effect.

Some recent investigations of cases presenting the clinical picture of thrombosis of the central retinal vein show that the majority of cases so diagnosed are not thrombotic at all, but are due to a proliferative endophlebitis occurring in the vein within the lamina cribrosa and just posterior to that structure. Of this nature were two cases out of eight reported by Harms.

A very interesting article by Dr. Verhoeff in the *Archives of Ophthalmology,* January, 1907, entitled "Obstruction of the Central Vein," gives a critical analysis of six cases in each of which the ob-

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*Surgeon to the New York Ophthalmic Hospital, Ophthalmic Surgeon to the Hahnemann Hospital, and to the Laura Franklin Free Hospital for Children.

struction was due entirely to proliferative endophlebitis, the clinical features of which were classical of thrombosis of the central vein.

In one of his cases there was a high grade endarteritis of the central retinal artery, with dissecting aneurism and formation of a new central artery within the old one. Reviewing the reports of Michel, Turk, Coats and Harms, he says, "It is therefore impossible to say that thrombosis of the central retinal vein ever occurs except as a result of sepsis." Verhoeff's article is based on numerous serial cross sections of the hardened and stained nerve from eyes that had been removed for a secondary glaucoma, and in presenting my case in which the eye returned to a normal appearance and function, it is appreciated how difficult it is to present a diagnosis that will stand a critical examination. It has seemed, however, of sufficiently unusual importance to present it for your consideration.

Miss E. M., aged 21 years, had been my patient for nine years, and had been in good health except for several tertian malarial attacks, consulting me only for the correction of a compound hyperopic astigmia, the result always being $^{20}/_{15}$ vision in each eye. The eye muscles were normal and there was no vertical fault.

In June, 1905, she complained of vertigo and severe occipital headache, but a cycloplegic refraction test revealed no fault and exhibited normal vision.

In July, besides the vertigo and headache, she had pain back of the left eye which was aggravated by motion; dim vision in that eye, particularly in a bright light and on looking down. For this there was no evident cause, and vision on testing was, with correction (wherever vision is noted hereafter it is "with correction), L. eye $^{20}/_{80}$.

A week later to my surprise vision was reduced to $^{3}/_{200}$, and color perception for red and green was possible only at the point of fixation. Both pupils acted normally to light and accommodation. The edges of the optic disk were hazy and edema of the retina was further manifest by the hazy outline of all the fundus details, but the vitreous was clear. The color defect had not been observed by the patient, but was revealed upon taking a field.

The patient now complained of feeling of numbness, tingling and coldness in both legs, most marked in the toes and on the left side. On the ankle of this side there was an area of anesthesia to cotton friction. The visual field was slightly contracted for white, altho motion of test objects could be distinguished as far toward the peri-

phery as by a normal eye. Vertigo and headache were constantly present, but varied in degree from time to time. She also had tender spots with swelling along the femur and at the knee.

Diffuse endarteritis was the diagnosis made in consultation with a prominent neurologist. He was inclined to include the word "specific," but no history nor evidence of this as an etiological factor could be obtained. The eye manifestations indicated a local focus in the ophthalmic artery.

Iodide of potash was prescribed up to thirty grains three times a day, the use of which was followed by immediate improvement.

August 3. Ten days after the vision had registered $^{3}/_{200}$ it had improved to: left eye $= {}^{10}/_{200}$. Tingling in the left hand and fingers.

August 16. The left eye remaining the same, she reports a blur before the right one in which vision was found to be $^{20}/_{50}$. Other new symptoms were: ciliary injection of the left eye, without secretion, pain in the back of the neck, and a drawing sensation in the lumbar region.

At the end of August, about two months from the inception, vision became: right eye $^{20}/_{40}$, left eye $^{12}/_{200}$. A few hair-like vitreous opacities were present in the right eye, the left being clear.

The field of vision in the right eye was normal. The ability to distinguish red and green was entirely lost in the left eye.

September 20. Vision: right eye $^{20}/_{30}$, left eye $^{20}/_{100}$; in the fundus of the left eye there were signs of improvement, the disk edges and retinal details being clearer. She felt better, had less vertigo, tingling and headache. No opacities were observed in the right vitreous. The patient exhibited a tendency to carry her head tipped to the right side.

On October 4 right vision was $^{20}/_{30}$, and left $^{20}/_{50}$; two weeks later a further improvement, and right $^{20}/_{20}$, and left $^{20}/_{40}$.

November 2, both eyes had vision of $^{20}/_{20}$. Color fields remained same as before, that is, contracted for white, and the red and green entirely lost in the left eye. A test of the vertical elevation of the eyes showed a right hyperphoria of one degree. The disk outlines and fundus details appeared nearly normal.

Two weeks later she was able to perceive red and green at the fixation point in the left eye. Right hyperphoria remained one degree, and was corrected at this time by adding a prism to her lens.

December 10. The area of color perception increasing.

December 27. Feeling better. Some pain back of the eyes, but practically no tingling. Color fields in both eyes normal.

February 2, 1906. Vision in each eye is $^{20}/_{15}$.

Right hyperphoria two degrees, and at other examinations in this month the vertical fault varied from two to two and a half degrees. Looking upward was painful, and up to the right caused diplopia. Another degree of prism was added to her glasses.

From February to August, 1906, with examinations at intervals, there was a marked improvement in the hand and leg symptoms, the headache and vertigo were absent for a large part of the time. At times the potash was discontinued for a week or so, in which case the symptoms became more prominent.

At the present writing, May, 1907, there is no double vision, no tingling, except in the fingers of the left hand for an hour or so in the morning, no impairment of sight, and the color fields are normal. The retina and disks are clear. No opacities in the vitreous of either eye.

She has considerable headache and some vertigo, the headache being usually on the right side. Her hyperphoria is corrected with a prism 2½° base down in the right eye.

The writer has been unable to find similar cases reported, or to learn of such from his confreres, and yet he feels that were he able to locate them others must have been observed.

Dr. John E. Wilson was the neurologist who examined the patient, and on May 22, Dr. William Van den Burg carefully examined both the patient and the record of her case; in his report he says: "Considering the history which she gives, as well as the record of previous examinations submitted, I should consider that she had suffered from certainly a local endarteritis, and probably from a more or less general one."

128 West 85th Street.

DISCUSSION.

JOHN E. WILSON (New York): The case presented by Dr. Hallett is a very interesting one; the first idea that would occur to almost anyone in such a case would be that there was some growth or foreign formation in the eye. There were some factors that did not fit that theory on close inspection. She had headache, it is true, but not the intense headache which she should have had. Owing to the fact that she did not come around again for further examination, as requested, some features were not checked up. She had a well nourished look, so

that it seemed rather a local trouble than a specific. Almost all of her symptoms were subjective ones; she had very few somatic signs, but a great abundance of subjective ones. The question of etiology I went into very thoroly, and there did not seem to be much probability of its being luetic in its nature. Where you find endarteritis very much localized in character, there is a strong probability that the affection is local in character and not systemic. Such cases are apt to be acquired and not hereditary. Symptoms of so much change in the visual power suggest always that there is an affection—a local one—of the brain. These cases are apt to have epileptoid fits. Then some eye symptoms are discovered and go thru a history similar to this one. It is a case that reflects great credit upon the physician. Acute endaritis extending over a large area usually ends in death, but in this case the trouble was extremely local.

E. H. LINNELL (Norwich, Conn.): Dr. Hallett has presented a most interesting and, so far as my experience and reading go, a unique case. As he remarks, it is difficult to make a positive diagnosis. In endeavoring to do so, let us briefly recapitulate the main features.

In an apparently healthy young lady of twenty-one years, there suddenly develop with no apparent cause, indications of cerebral vascular disturbance, manifested by persistent headache and vertigo. This is followed a few weeks later by pain in the left orbit which is increased by motion, dimness of vision of that eye, and loss of color sense, which conditions, after lasting nearly four months, gradually disappear; and also characterized by a permanent right hyperphoria, whereas previously careful tests had shown no muscular error.

It is to be regretted that the relative strength of the individual muscles was not carefully tested, so that we might be certain which one was at fault, but there was presumably a paresis of the left superior rectus.

The only abnormal ophthalmoscopic appearances mentioned was an edema of disk and retina. No mention is made of changes in the contour or appearance of retinal vessels, and it is inferred therefore that none existed. Mention is also made of slight impairment of vision of the right eye without statement of the ophthalmoscopic findings, other than a trifling and transient cloudiness of the vitreous. The details given regarding the right eye are insufficient to form a diagnosis, and for the purpose of discussion it may be disregarded.

The pain behind the eye aggravated by movement, and the hyperphoria accompanying the loss of vision, certainly point to a lesion within the orbit. I think we may exclude retrobulbar neuritis, as it is commonly understood, from the gradual onset of the affection, the absence of a satisfactory exciting cause, and from the absence also of the characteristic central scotoma.

There remain, to explain the eye symptoms, three hypotheses, viz.: Periostitis at the apex of the orbit, a gumma or other neoplasm, and a purely vascular lesion as the doctor suggests.

Would the latter explain the muscular paresis, and would there not have been manifestations in other branches of the ophthalmic artery, in addition to the parts supplied by the central artery of the retina? Would there not also have been noticeable changes in the appearance of the vessels of the disk and retina, such as could not have escaped the observation of Dr. Hallett? It seems to me improbable.

In support of one or the other of these hypotheses, let us take into consideration the general symptoms.

I think endarteritis of the limbs is the most plausible explanation of the pains, tingling, numbness and swelling of which the patient complained. Endarteritis would also explain the head symptoms, but would not cerebral syphilis also explain them? Moreover, syphilis affords to my mind the only plausible explanation of the development of endarteritis in so young an individual who had been apparently in excellent health up to the time of her first consulting Dr. Hallett. The recovery under large doses of iodide of potash lends further support to the theory of the specific nature of the trouble. It would be helpful if the doctor had made a thoro examination of the heart and kidneys to exclude a possible causative factor in either of those organs.

My diagnosis therefore would be a general endarteritis of specific origin, with a localized lesion at the apex of the orbit sufficiently pronounced to produce partial obstruction of the circulation in the optic nerve, with consequent edema, but not sufficient to cause marked inflammation, and subsiding before consecutive atrophy developed.

If syphilis can be positively excluded, then endarteritis of the ophthalmic artery must be accepted as the most probable diagnosis. It would however be difficult to assign any other reasonable cause for such a condition in a person only twenty-one years of age, or to explain why the results of such inflammation were manifested only in the track of the central retinal artery. Moreover such a diagnosis, as I have already remarked, does not explain the development of the hyperphoria.

Dr. Hallett: The case was especially interesting to me because I had the girl under observation for nine years. Both her history and the physical examination revealed no specific origin of the trouble. It was of additional interest that she had so complete a loss of vision followed by complete recovery. Later hyperphoria developed, something that she never had before. Dr. Van den Berg's examination showed that the heart, lungs and kidneys were normal.

Dr. Linnell's discussion, so orderly and exact, presents the one other possibility, namely: that a tumefaction of some kind existed at the apex of the orbit, which from treatment or otherwise fell short of permanent damage, but if we allow that she had endarteritis elsewhere then why not in the central artery? Every effort to connect syphilis with the case failed, and the helpful effect of potash does not necessarily indicate syphilis. Unexplainable hyperphoria I have observed before.

THE REPORT OF A CASE OF ORBITAL HÆMATOMA.

HARRY S. WEAVER, M. D.,

Philadelphia, Pa.

ORBITAL diseases which more or less suddenly cause a protrusion of the eyeball are rare. Exophthalmos may be caused by fracture of the bony wall with rupture of some of the blood vessels and an escape of blood into the cellular tissue posterior to the eyeball, thereby forcing the globe forward, or to an orbital tumor, orbital cellulitis or phlegmon; either of the above causes are sufficient to produce an exophthalmos, but when such a condition is found and continues to increase without a detectable cause one soon realizes some of the uncertainties which are encountered in medical practice, thereby taxing the diagnostic abilities of physicians. When a history of traumatism is obtained followed by a protrusion of the eyeball, fracture with an escape of blood into the tissues is immediately thought of, and the physician has some grounds upon which to base his diagnosis. In orbital tumors which are of sufficient size to cause a marked exophthalmos the patient will complain of pain or have some constitutional symptoms which will aid in making a diagnosis. In a cellulitis or phlegmon the temperature in most cases will be elevated and show the usual evening rise and the morning remission.

But in the case I wish to report there were none of the above symptoms. Simply the gradually increasing protrusion of the eyeball without a rise in temperature or apparent pain until the lids failed to cover the cornea and a keratitis developed which necessarily caused some suffering.

Master K., aged twenty months, was first seen on March 3d, when I found the right eye protruding at least an inch beyond its normal position with a decided swelling and ecchymosis of both lids, the lower being everted from the enormous amount of infiltration of the conjunctiva. The lower half of the cornea remained exposed and was commencing to show signs of breaking down. The pupil was dilated and fixed, but the mother thought the child had some vision.

The child had a mild attack of whooping cough during the early

winter, and about two weeks before the eye condition developed, had a mild attack of measles, which ran a short course with very little temperature.

Three weeks prior to my first visit they noticed a slight bulging in his right eye; this was very slight, so that no physician was called until two weeks later. Dr. Clay saw him one week before my first visit, and put on boric acid compresses with a pressure bandage, but the exophthalmos steadily increased; up to this time the child had no rise in temperature and seemed free from pain. The bulging of the eye gradually increased and the swelling of the lids became more marked so that it was impossible to close the eye.

I was called a week later and found the child restless, evidently suffering from the keratitis and the tension of the ball from pressure. I went over the case very carefully and was at a loss to know what was the primary cause of the trouble which could cause so much objectively with so few subjective symptoms. I reserved a positive diagnosis, and asked Dr. Caley to have Dr. Thomas see the case with us the next day. We then chloroformed the child so as to make a more thoro examination of the orbital cavity by palpation, and found a soft mass in the lower and outer portion of the cavity; this was incised freely and a small quantity of dark blood evacuated. The conjunctiva was freely scarified, and a wet dressing applied with a tight pressure bandage. This relieved some of the symptoms for a few hours, but by the next

day the lower lid was more swollen and the eyeball more prominent, so I advised immediate removal to the hospital.

The case was admitted the following morning, and Dr. Thomas and I, after going over the case thoroly, decided to remove the eyeball—which was done under chloroform anesthesia. Very little bleeding occurred until just prior to the severing of the nerve, when there was a decided gush of dark blood which was soon controlled by the ordinary hot compresses. The posterior portion of the orbital cavity was found completely filled with blood clots which by pressure had caused an absorption of all the fatty tissues, leaving only a few connective tissue fibers and the periosteal lining of the cavity.

The utmost care was taken to thoroly remove all the blood clots, and after cleaning the surfaces a thin piece of rubber with a number of holes for drainage was introduced and the interior gently packed with sterile gauze until the cavity was filled, then a wet dressing applied with a snug bandage. This was allowed to remain twenty-four hours when it was easily removed, the lids thoroly greased with sterile cosmoline and a small pack of iodoform gauze inserted with a moist dressing applied to the outside. The outer dressing was changed the next day but the iodoform gauze was allowed to remain. The following day the whole dressing was changed and the cavity thoroly washed with boric acid solution and a smaller pack of iodoform gauze again introduced into the socket; this was allowed to remain two days, when all packing was removed and the cavity washed each day with boric acid solution followed by a plentiful supply of cosmoline rubbed on the surfaces.

The patient was discharged from the hospital in eight days, but the thoro syringing was kept up at his home for another ten days, each time applying a plentiful supply of cosmoline to the lids. In three weeks the swelling had disappeared and the lids were nearly normal.

The boy made a very rapid recovery, and all thru his trouble developed very little rise in temperature and showed very few constitutional symptoms.

My object in reporting this case is to show the difficulty in making a positive diagnosis of orbital hæmatoma, the uncertainty as to the cause of the trouble, the few constitutional symptoms which the patient had, the great loss of orbital tissue which was found and the extreme youth and good health of the boy prior to the beginning of his trouble.

DISCUSSION.

F. B. SEITZ (Buffalo): Was it a case of hæmatoma or glioma that had grown up? I had a case of total blindness in a child without exophthalmos.

DR. WEAVER: This was a pure hæmatoma. There was no history of traumatism; during whooping cough there were a few hard paroxysms but it was not a very bad attack. The attack of measles was also light. There seemed to be no attributable cause. The mass of blood clot in the posterior part of the orbit caused so much pressure that all of the fatty tissue was absorbed. We had to make an incision of half an inch thru the external canthus to get the tumor out, so much larger was it than the natural opening of the eye. The incision that we made on the first visit was with the view that it was orbital hæmatoma, but because of the little blood obtained we did not think the diagnosis of blood tumor warranted.

CONTRADICTORY REFRACTIVE ERRORS.

FRANK B. SEITZ, M. D.,

Buffalo, N. Y.

AS in refraction we are continually trying to correct the visual angle, it is a simple matter and even a pleasure to give perfeet, easy vision in ordinary cases; but it frequently happens that all rules are shattered and all sorts of complications arise so that to correct one defect serves only to aggravate another, and no rule can be followed except that of tolerance and relief.

By contradictory errors, I refer to esophoria with myopia, exophoria with hyperopia, normal distant vision muscular balance but insufficient convergence in presbyopia, concomitant strabismus with two diopters of myopia, prisms as first glass at fifty years of age; of all of which I have had one or more cases.

CASE 1.—Henry C., age 14, has concomitant strabismus. Right vision, $^{20}/_{200}$; with — 4. s. ⌒ — 3. c., axis 180°, vision = $^{20}/_{40}$. Left eye, vision $^{20}/_{40}$; made $^{20}/_{20}$ with — 1. c., axis 180°. Being near sighted, he saw close by sufficiently for his needs, but with one eye only, and was allowed to grow up in this condition by his not acutely observing parents. The strabismus was evidently the result of nature's effort to exclude a blurred image; but why the eye did not turn outward, as per rule, is a question. Some refractionist had prescribed a pair of + 1. spheres with the intention of correcting the strabismus. It was impossible to get an accurate tropometer test, tho I demonstrated an absence of paralysis of the external rectus. The above glasses were prescribed, the eyes are more nearly balanced, and later a tenotomy will be performed.

CASE 2.—Mrs. H., age 33, had terrific headaches with vertigo, nausea, falls asleep on doing close work. Vision, $^{20}/_{100}$; with — 1 = $^{20}/_{20}$. Esophoria of five and three degrees. Minus spheres with prisms base out were unbearable and simple spheres gave but slight relief. Prism exercises with the wearing of gradually increasing prisms from one-half up to two, combined with a spherical one diopter, was the solution of this case.

CASE 3.—Miss R., age 30, school teacher, one of those highly educated and intelligent thin, spare persons of keen sensibilities, has myopic astigmia of — 1.50, axes 30° and 120°, and esophoria of six and three degrees. Needless to state, she was a nervous wreck, incapable of teaching for months past. Added to the difficulty was that unaccountable horror for drops, a feature finally overcome. Both eyes were kept under atropin and dark glasses for two weeks, necessitating absolute eye rest, during which time she recuperated rapidly. To my surprise, a glass giving perfect vision and balance was worn with comfort and great relief of many symptoms.

CASE 4.—Mrs. J., age 50, is a case of prisms as first glass at fifty that is, she has exophoria with perfect vision and presbyopia first stage. She had suffered from nervous prostration due as she thought to menopause. She noticed lately she could not read nor mend as easily as formerly and wanted glasses. I found one-half diopter of myopia and exophoria of three and six degrees with increase of exophoria on wearing + 0.75 s. Advised wearing 1° prism base inward constantly, and + 0.75 with 2° prism base in for near work. The result was frightful:—Bother with unaccustomed glasses, floors and ceilings converging, misstepping, etc., produced a cataclysm of nervous outbursts as to make her almost maniacal. Constant glasses were abandoned, prisms taken out of the reading glass with some relief; but close work, tho seen clearer, was annoying and fatiguing because of the exophoria. Finally, after months of experimenting, she is wearing a + 0.75 with 1° prism base in for close work and nothing for distance.

CASE 5.—Mrs. P., age 52 years, has perfect distant vision with muscular balance, presbyopia first stage with exophoria, or rather deficient convergence on close work. She was wearing a + 1.50 s., which she found insufficient. Believing that that glass was strong enough at her age, I gave her the same with a 2° prism base in for both eyes. While effecting muscular balance, the prisms played havoc with lines and angles. She cut goods on a bias, and was surprised they did not fit on being sewed together. Then too she could not see fine print nor thread a needle any better than before. Here, evidently, was one whose exophoria in convergence had robbed enough nerve force from other parts to age the eye beyond her years, for at 52 she is now wearing comfortably a + 2.50 with a 2° prism base in for close work.

CASE 6.—Mrs. S., age 33, is a thin, spare, gaunt, nervous person with marked absence of orbital fat (showing eye strain) who has never

worn glasses. Her vision of $^{20}/_{80}$ was made $^{20}/_{20}$ with a + 2. c., axis 90°, but there was exophoria of four and eight degrees. I made the mistake of giving the right glass at once, and the result was an intolerance. They were worn only occasionally and then more as a dutiful punishment. However, later the glasses were reduced and worn with comfort, accumulation of orbital fat and improvement of general condition.

Among the conclusions to be arrived at from these cases are the following: If possible, ignore the least obtrusive fault. The next best is to effect a compromise or to begin with partial correction and gradually increase. Correct the error that will improve vision and the relief of wasted nerve force may stop the perverted flow to an abnormally acting part. Graduated tenotomy after wearing of glasses has eliminated some of that instability of muscles always found in these contradictory errors. Still, when all phases of the question have been considered, one is forced to the conclusion that no rule can be followed except that of tolerance and relief.

21 North Street.

DISCUSSION.

WILLIAM F. BEGGS (Newark, N. J.): Next to the treatment of tinnitus aurium I know of no branch in our specialty which so tries our patience and so annoys our patients as these contradictory refractive errors. The muscular imbalance no doubt plays a large part in the localization of symptoms, but as Dr. Seitz says in his summing up, each case must be a law to itself. In the correction of the various "phorias" I have depended more upon surgical procedures, such as advancements and tenotomies, for the correction of the errors. What little use I have had with prisms has led me to believe that the average case will tolerate about one-fourth of the manifest trouble.

Most cases of anisometropia which have come my way have proved to be my Waterloo. Even tho the vision of the most affected eye were corrected, equal to its fellow, the result rarely warranted me in accepting the case as relieved or benefited. In the correction of all these troubles I have tried to cater to the individual idiosyncrasy, but the results have been far from satisfactory to me. Many of these cases represent a neurotic type which we all know is an unstable equation to deal with. When the nervous system is the most stable, and it is our fortune to have the case come our way, then we may expect a more fruitful result. My idea is that these unfortunates travel from one oculist to another, and the last one temporarily will be the best one.

Dr. Seitz has had an unusual classification, and his results are like-

wise unusual from my experience. He should be congratulated upon the masterly way in which he handled these poor unfortunates.

ROBERT J. FERGUSON (New Haven, Conn.): The class of cases that Dr. Seitz has cited are not uncommon, every oculist is constantly meeting with these cases which tax his ingenuity to the utmost in his efforts to afford relief. I think that Dr. Seitz has very wisely reached the conclusion that no fixed rule can be followed, but that of comfort ensuing from the relief. Each of us not infrequently meets with cases in which we find anomalous conditions for which no satisfactory explanation can be given, such as esotropia with myopia and exotropia with hyperopia, but it does not necessarily follow that no explanation exists.

Stevens in his latest work, "Motor Apparatus of the Eyes," says, "In a number of works on the subject of strabismus statements appear in regard to the proportion of certain forms of refractive anomalies to each of the generally recognized forms of strabismus, the converging and diverging. In these statements however there appear no details, or very imperfect details, of the various conditions, and from these indefinite data important and erroneous conclusions have been drawn."

He then gives a classical list of two hundred consecutive cases from his private practice, and says that the list originally contained four hundred, but careful examination did not disclose any great variation in the summing up of the results. He finds that the refraction was myopic in twenty-eight cases, hyperopic in thirty-eight, and emmetropic in twenty-three cases that showed an exotropia. In sixty-eight cases showing esotropia, eighteen were myopes, twenty hypermetropes, and twenty-nine emmetropes. He adds, "These cases therefore do not sustain the view that converging strabismus is caused principally by hypermetropia, nor that diverging strabismus is almost always caused by myopia." His section on "The Relation of the Function of Accommodation to that of Convergence" will amply repay any one who will devote the time to its perusal. Stevens considers exophoria in accommodation of from 4° to 6° a physiological condition.

He states that "In the best condition of equilibrium there will generally appear exophoria in accommodation 4° or 5°, and this should be taken into account in adjustments for glasses for reading; for if the exophoria in accommodation as shown by a prism is abolished, the patient is given a practical esophoria."

This important point in adjusting reading glasses often demands careful attention. Again he says, "In practice a person with nearly the adjustment of orthophoria will in general show at the near point by such a test (freed from all suggestive lines and marks) a failure of convergence for the distance of the object of about from 4° to 6° of prism."

We have all met with cases of hypermetropia complicated with esophoria which, when the refractive error was corrected, would cause a disappearance of the exophoria restoring a perfect muscular balance,

and also causes of myopia with exophoria in which perfect muscular balance would follow the full correction of the myopia.

Hyperphorias associated with errors of refraction not infrequently disappear entirely when the refractive errors are corrected. I consider that the prescribing of prisms as a primary routine is altogether inadvisable. My experience leads me to believe that one should prescribe the correction which will give the person clear binocular vision without any unnecessary waste of energy, then wait a reasonable length of time and see if the muscular balance will be restored. The prescribing of prisms is at best more or less unsatisfactory and should be resorted to only as a temporary expedient to elicit valuable information and not as the ultimate correction of the muscular defect.

Hyperphoria of from 1° to 1½° which persists after correcting the errors of refraction is the one form of heterophoria that is most frequently relieved by prescribing prisms, but many of these cases do not derive comfort from the wearing of correcting prisms and are only relieved by operative measures.

In cases of exophoria however we have thru exercising the internal muscles by prisms a means so satisfactory that the wearing of prisms base in has practically no place in the scientific treatment of this trouble. Where prism exercising fails partial tenotomy is the next rational step to be taken.

The exophoria in accommodation with presbyopia is most satisfactorily treated by prism exercises, and I have had cases which after proper exercising could read with comfort, a thing which they could not do with the prisms to be used in connection with the plus spheres which had been prescribed for them by other oculists.

E. W. BEEBE: This paper confirms what I said some time ago. It is better to prescribe glasses that make the patient comfortable than it is to make full correction for what we may determine to be the absolute error. If we make full correction we make the patient uncomfortable in order to satisfy our theoretical idea of what is right. I seldom use prisms now, altho I did use them formerly a good deal. Make your patient comfortable at one sitting is a good rule, and then gradually correct the error more fully.

H. WELLS WOODWARD: By lack of orbital fat do you mean recession of the eyeball?

D. A. MACLACHLAN: In correcting such refractive errors I have always made a habit of giving such correction as the patient will bear at the time; that seems only good sense to me. They come to us for relief of strain. Whatever correction is necessary to make the patient comfortable is the first thing to do; I anticipate that I can give them fuller correction later. We may not secure anywhere nearly perfect vision at the first sitting, but we can do what they come to us for, namely, relieve the eye strain and subsequently we may arrive at full correction. I have a boy with convergent strabismus of extreme degree who had been under old school oculists for four or five months and had used the

"English treatment" all without help; indeed he was growing worse. He was getting to a point where St. Vitus's dance was developing and was run down in general health. I examined the glasses and found that they were plus 3.50. I made use of full mydriasis and also made a retinoscope examination and found that he would bear a correction of plus 4. I simply increased the glasses to plus 4 in each eye, and put him on agaricus. In ten days' time the strabismus had disappeared entirely for distance and nearly disappeared for near vision. I do not know how much the agaricus had to do with the improvement. Having secured double vision I proceeded with ocular gymnastics, developing the weak muscles, and it looks now as tho an operation may be avoided.

J. W. STITZEL: Putting such glasses on the patient as he feels best with at the time is not always the best thing for the patient. I have a case in mind of a young lady who was wearing lenses — 0.50 c., axis 180°, which apparently corrected her manifest error. After examining her under atropin I found her true correction to be plus 0.50 s. combined with + 0.50 c., axis 90°. After the mydriatic effects wore off, she would not accept anything but a minus 0.50 c., axis 180°. Later, after two months of rest, I put her under atropin again and gave her full correction without the least objection on her part. Every one of us sees this class of cases. If you look at this case more carefully you will readily see that by putting on the minus cylinder axis 180° you have made the case one of simple hyperopia; the patient may be relieved somewhat but you have not made the proper correction, and can not tell what the true correction is unless you use a mydriatic.

DR. SEITZ: We seem to agree that we want to make the patient comfortable, the question is by what method.

QUININE AMAUROSIS AND DEAFNESS.

George W. McDowell, A. M., M. D.,

New York.

As cases of quinine amaurosis and deafness are somewhat rare, the history of a case which recently came under my observation is herewith presented.

The patient is a lady of fifty years of age, whose health has previously been good, with the exception of frequent attacks of headache, for the relief of which she had been in the habit of taking ten grain powders of phenacetine. The use of the drug had never been followed by any apparent bad results. In February, 1907, she was taken ill with pneumonia. While the temperature range was not high, and the left lung was alone involved, she developed an alarming weakness of the heart which caused the physician grave concern. Towards the end of the first week she became markedly cyanotic, and a consultation was held. As a result of this it was resolved to give the patient, who was under old school treatment, large doses of quinine as a last resort in what appeared to both attending and consulting physicians to be a hopeless case.

The drug was given as follows: February 16th, at 6 p. m., 30 grains; 10:15 p. m., 20 grs.; February 17th, four doses of ten grains each at intervals of three hours, beginning at 11:30 a. m.; February 18th, ten grains were given at 1:15 a. m., 8 a. m., and 11:30 a. m., with 30 grains at 1:30 p. m. The heart and respiration had promptly responded to the influence of the drug up to February 18th when, the temperature becoming slightly elevated, the physician in charge fearing a return of the earlier symptoms ordered 30 grains of quinine to be given at one dose as above mentioned. The patient had now taken 150 grains in about forty-four hours. Up to this time no untoward symptoms that could be attributed to the drug had been observed. At 4 p. m. the patient mentioned the fact that it seemed to be growing dark rather early. This was two and a half hours after the last dose of quinine had been taken. As she was more or less under the influence of morphine, the patient made no further remark about her vision until

the next morning when on awakening she was unable to discern the light, altho the sun was shining brightly.

She was seen by me six days after the loss of vision had occurred. At this time her pupils were dilated and did not respond to light stimulation. Vision = fingers at two feet, and was entirely central in both eyes. An examination of the fundus showed the arteries to be very small while the veins were relatively distended. The disc was not noticeably pale.

During the pneumonia and appearing at the onset of the attack, she had an acute suppuration of both ears which had yielded to the ordinary treatment of hot douching. She stated that since the loss of vision had occurred she had also become very deaf. On examining the ears I found that the perforations in the drumheads had entirely healed, leaving only a slight congestion. The hearing at this time was: R. E. contact $/_{240}$, L. E. $^{0}/_{240}$. Hearing for the C fork was very slight. Rinné was positive, with bone conduction almost entirely abolished.

The patient was seen two weeks later, during which time she was taking strychnia, iron and nuclein. At this examination the pupils were about normal in size and responded to light stimulation. The arteries were apparently no larger than before, the veins also remainiug unchanged. Vision had increased to $^{10}/_{50}$ for each eye. The field of vision was slightly enlarged. Hearing had also improved in the interval, altho no special treatment had been directed to the ear, the test with the watch giving a. u. $^{4}/_{240}$.

The patient was again seen on April 28th, about four weeks from the onset of the attack. She reported that her vision had continued to improve and that she thought her hearing was as good as it had been formerly. As on the previous occasion, the examination took place at the home of the patient, and was not as complete as could be desired. The vision was tested at five o'clock in the afternoon of a day that was rather cloudy, so that the illumination was not of the best. Under these adverse conditions the test showed V. o. d. $^{12}/_{40}$, o. s. $^{12}/_{20}$ (?). The previous examinations had been made while the pitaent was in bed, and in another room, which accounts for the difference in the testing distance. The field of vision was roughly tested and, while still circumscribed, showed an increase in all directions over the preceding test. The examination of the fundus showed the arteries slightly larger than before but still very small. The veins remained the

same as before, relatively much larger than the arteries. The disc looked a trifle more pale than when the eye was first examined, when the patient could only count fingers at two feet. The hearing had increased very markedly, being now $^{36}/_{240}$ for both ears, as compared with contact for the right, and nothing for the left ear on the first visit.

In an article on the effects of quinine on the eyes and ears in the *Archives of Ophthalmology,* Vol. X, page 81, Dr. Gruening, of New York, sums up as follows: The patient after the ingestion of a single dose or repeated doses of quinine in varying quantities becomes blind and deaf. Deafness disappears within twenty-four hours; the blindness remains permanent as regards peripheral vision, central vision gradually improving to normal after some days, weeks or months. The ophthalmoscope reveals an ischaemia of the retinal arteries and veins without inflammatory changes. He also mentions the fact that the color sense is usually impaired.

Dr. Frank Parker in the September, 1906, issue of the *Archives of Ophthalmology,* reports a case in which by mistake the patient took 240 grains of quinine in twelve hours. There was no complaint of deafness or tinnitus after the first twenty-four hours. The ophthalmoscope showed a thrombosis of the inferior branch of the retinal vein of the right eye, and of the superior branch in the left eye. Contraction of the field persisted, the patient finally regained central vision of $^{20}/_{20}$. A marked feature of this case was greatly reduced tension in the beginning (T. —2), which later returned to the normal.

1 West 34th Street.

THE USE OF THE CROSSED CYLINDER IN REFRACTION.

J. W. STITZEL, M. D.,

Hollidaysburg, Pa.

PROBABLY half of the time of the average oculist is spent in doing refractive work. And no matter what other methods or combination of methods we may use, we spend more time at the trial case than in all other work combined.

After all, no matter how carefully we may have worked out a correction with the retinoscope, the ophthalmoscope, the ophthalmometer or any of the various refractometers on the market, we confirm our findings, wherever possible, at the trial case.

While it is true the ophthalmometer usually gives us the correct axis and frequently the amount of the corneal astigmia, and is a very useful instrument in many cases, especially in children, yet it only gives us the corneal astigmia which frequently is wholly or partly neutralized or even increased by the lenticular astigmia.

The retinoscope also, at times, apparently indicates a difference in refractive power of the different meridia of the eye, when at the actual test with the trial case the patient will not accept a cylinder—I am speaking now of the ordinary tests made with the trial cells as found in the test case—so after all we must confirm all other tests at the trial case.

I do not want to be understood as opposed to the use of objective methods; for I am a firm believer and earnest advocate of the shadow test, using the retinoscope in every case I refract. I also find the ophthalmometer of great value in locating the axis of the astigmia. But I always confirm my other tests at the trial case, and I think the same is true of every oculist.

The adherents of the use of the ophthalmometer in determining the amount as well as the axis of the astigmia—as Davis, of New York Post Graduate, and his followers—frequently put on too much cylinder. On the other hand, those oculists who begin their work at the trial case with the sphere, gradually increasing it until the patient's vision reaches its greatest visual acuity by its use, often put on too much sphere and too little cylinder.

The use of the crossed cylinder will eliminate either of these two errors. It is not only applicable where a sphere is used in combination with a cylinder, but also where by the ordinary methods of testing either a sphere or cylinder may, by the trial cells, appear to be the true correction; or in other words, in all cases where astigmia actually exists.

The use of the crossed cylinder is to subjective methods what the shadow test is to objective. It is the only subjective method whereby we can change two meridians of the eye at the same time, increasing the spherical and diminishing the cylindrical, or increasing the cylindrical and diminishing the spherical at the same time; for by ordinary methods, or by the use of the trial cells, we must either increase or diminish the sphere or cylinder one at a time, and not conjointly.

The use of the crossed cylinder was first devised by Dr. Edward Jackson, some years ago, but for some unaccountable reason it has not come into general use and is not even mentioned by many of our leading authors on ophthalmology. I feel sure if its principles were more thoroly understood by oculists, it would certainly be more frequently used. The crossed cylinder is intended to determine the cylinder required in all cases of refraction where astigmia is present, and is a quick and accurate means of estimating the actual correction.

The crossed cylinder, as its name implies, is a pair of cylinders of equal strength—one concave, the other convex—placed at right angles to each other, and is of course equivalent to a spherocylinder; the cylinder and sphere being of opposite refractive power, or in other words, the one plus and the other minus.

In these samples which I pass around for inspection, you will notice the direction of one axis is marked upon the glass, the other being, of course, at right angles to it. The strength of the cylinder is marked on the handle and the cylinder is mounted at an angle of forty-five degrees in a cell with handle, and a simple twirl between the thumb and forefinger, gives the change from plus to minus almost instantaneously.

These are made in combinations of different strengths, the following three combinations being the most useful: — 0.12 spherical ⊂ + 0.25 cylindrical, — 0.25 sph. ⊂ + 0.50 cyl. and — 0.50 sph. ⊂ + 1.00 cyl. These of course are equivalent to a pair of 0.12, 0.25 and 0.50 cylinders respectively, one plus, the other minus, placed at right angles to each other.

Of the three crossed cylinders, the strongest is useful where the astigmia is considerable, the change it indicates being greater. The 0.25 cylinder is most frequently useful of the three. The 0.12 cyl. being used in the final determination and when the astigmia is 0.25 diopter or less.

It is used as follows: after working out the approximate correction before the eye at the trial case, by any of the ordinary subjective methods as trial lenses, stenopaic slit, astigmic chart, etc.—or by any of the objective methods, as the shadow test, ophthalmometer, ophthalmoscope, etc., test the approximate correction in the trial frame by placing plus and minus spheres before it, thus making sure that no improvement can be made by either increasing or diminishing the sphere.

I do this with a handy little device devised by Dr. Lakin, of Philadelphia, and made by McIntyre, Magee & Brown, consisting of a + 0.25 sphere, a plane glass and a — 0.25 sphere, all three so arranged in a series that they can be quickly changed before the lenses already in the trial frame. These are made in sets of various strengths, the + 0.25 being the most popular.

You will readily see that where no change in the sphere is necessary patient will see best with addition of the middle or plane glass; if he or she sees better with either of the other two, you can change the sphere in the trial frame accordingly. Having made certain that no sphere will better the vision, we are ready to proceed with the crossed cylinder. The patient under examination is not asked whether the crossed cylinder improves the vision—it may even make it worse—but as to which of the positions is the better.

For purpose of illustration, let us say the true refraction of an eye is + 1.00 sph. ⊂ + 1.00 cyl. axis 90°, and that a + 1.25 sph. ⊂ + 0.75 cyl. axis 90° is the approximate correction, or the correction you may have arrived at by any other method. You will readily see that you have corrected one meridian, in this case the horizontal, but have over corrected the vertical meridian. You will also notice that neither sphere nor cylinder is the correct one, the sphere being too much and the cylinder not enough.

If we now try the spheres we will find that no sphere will improve the vision, but of the spheres the minus 0.25 sphere will be the better of the two because it corrects the vertical meridian, which was over cor-

rected, but it is not as good as the correction already in the trial frame because at the same time it only corrects half of the astigmia.

If, instead, we use the 0.25 crossed cylinder and place the plus axis of the cylinder parallel to the plus axis of the cylinder in the trial frame, we will have increased the cylinder and dimniished the sphere as shown by the formula + 1.00 sph. ⊂ + 1.00 cyl. axis 90°. If we now turn the plus axis of the crossed cylinder at right angles to the axis of the plus cylinder in the trial frame, we will have diminished the cylinder and increased the sphere, as shown by the formula, + 1.50 sph. ⊂ + 0.50 cyl. axis 90°.

The above is true in every case where crossed cylinders are used; when the patient prefers like axes (or axes of the same denomination) placed parallel, increase the cylinder and diminish the sphere, and when unlike axes are parallel, or axes are at right angles to each other, increase the sphere and diminish the cylinder.

In the case given, patient will have the better vision with the plus cylinder in the first position, it being nearer the true correction. If the cylinder is now increased as indicated by the first position, we have + 1.25 sph. ⊂ + 1.00 cyl. axis 90°. Now place plus and minus 0.25 spheres before this and the minus sphere will be preferred, and by replacing the + 1.25 sph. with a + 1.00 sphere, we have + 1.00 sph. ⊂ + 1.00 cyl. axis 90°.

Re-examining with the crossed cylinder, the patient shows no preference for either position; nor can vision be improved by plus or minus spheres. The axis of the cylinder should be retested after any change in the sphere or cylinder.

DISCUSSION.

G. DeW. Hallett: The time that it takes to remove a glass from the trial frame, and replace it with another, gives a slight interval in which the patients lose their recollection of just how distinct certain letters appeared to them. The crossed cylinders remove this difficulty and are useful in my opinion to detect slight errors in the glasses present in the frame.

Dr. Stitzel: I have found the crossed cylinders useful, not only where there is a slight spherocylindrical correction, or where you have made the approximate correction by the usual methods, but also of great value in those cases which have retinal trouble. In cases of retinal disease, where the acuity of vision is poor, they often cannot

tell within a diopter which sphere or which cylinder is best. It is just here that the half diopter crossed cylinders are particularly useful. Where you find a spherocylindrical correction needed and you want to make sure that you have the proper correction and have both the sphere and the cylinder exactly right, take the crossed cylinders and place the plus axis of the cylinder over the plus axis of the cylinder in the trial frames—or the minus axis of the cylinder so it coincides with the minus axis of the cylinder in the trial frame if you have a minus cylinder in the trial frame.

Always bear in mind that when the patient sees better with cylinders of like axes placed over each other (coinciding) indicates that the cylinder should be increased and the sphere diminished.

On the other hand, if the patient sees better with like axes at right angles to each other, the sphere should be increased and the cylinder diminished. Also remember not to ask the patient whether he sees better or not, but to ask in which position does he see the better.

You will frequently find that after working out a correction as well as possible by the usual methods, you can still improve on it by the use of the crossed cylinders. You will notice in actual practice that when the crossed cylinders are placed before the glasses already in the trial frames, you will always increase or diminish twice as much as the sphere.

E. J. GEORGE: Do you make the correction of refractive errors under a cycloplegic or not? My experience is that in astigmia the ciliary muscle in the astigmic meridian is overdeveloped and has to be relaxed. Now the question is whether the crossed cylinders give the result. Do they relieve the symptoms? The crossed cylinder may give more active vision that is true enough, but does it relieve the symptoms of reflex irritation? If you correct under a strong cycloplegic the matter is simplified a great deal. The muscular fibres in the meridian of the greatest defect are overdeveloped, and it makes a difference whether you are correcting the latent defect only or up to the full amount.

DR. STITZEL: That is just the point that I want to bring out. I almost invariably make use of a cycloplegic, but not usually atropin; in many cases we do not get a chance to use the atropin three or four days before making the examination, so as to produce complete relaxation of the accommodation, and if we do the accommodation remains paralyzed for a week or more afterwards. For this reason I generally use scopolamin; but I am satisfied that it does not break up the spasm of the accommodation like atropin does, and, therefore, I use atropin in all cases of children. But in these very cases, namely, where the accommodation is not thoroly relaxed, we can by the use of crossed cylinders effect results that we cannot arrive at in any other way. If the accommodation is thoroly paralyzed mistakes are not so likely to occur. You will find that the patients say that they can see better with a

lens say, a sphere, until you have made their correction say, $^{20}/_{20}$ths, and you begin testing with a cylinder; you can make their vision equally good or even better with the cylinder and it may be hard for the patient to tell with which they see the better. But if you make use of the crossed cylinders, you will relax the spasm of the accommodation to a certain extent and arrive at, or at least nearer to, the true correction. You cannot be sure always, even with a cycloplegic, that you have thoroly relaxed the spasm of the accommodation.

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1885	D. J. McGuire, Detroit, Mich.	C. W. Butler, Montclair, N. J.		Alfred Wanstall, Baltimore, Md.	George S. Norton, New York, N. Y.	W. H. Winslow, Pittsburg, Pa. H. C. Houghton, New York, N. Y. T. P. Wilson, Ann Arbor, Mich.
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Ex. E.	Wells, David W., The Westminster, Copley Sq., Boston, Mass.
Ex. Ea., N., T.	Wells, George S.,....1407 Chapline St., Wheeling W. Va.
Ex. Ea., N., T.	Wilberton, Lawrence G.,.....Model Block, Winona, Minn.
Ex. E., Ea., N., T.	Willard, Harry S.,.....44 Church St., Paterson, N. J.
Ex. E., Ea., N., T.	Wilson, Harold,.....32 W. Adams Ave., Detroit, Mich.
N. T.	Winchell, Walter B.,....137 Berkley Pl., Brooklyn, N. Y.
Ex. E., Ea., N., T.	Woodward, Erle B., Richard Blk, 11th and O Sts., Lincoln, Neb.
Ex. E., Ea., N., T	Woodward, H. Wells, 1318 Mass. Ave., Washington, D. C.

HONORARY MEMBER.

Wilson, T. P.,.....74 Forrest Ave., Detroit, Mich.

CORRESPONDING MEMBERS.

Parenteau, Daniel, ...73 Rue de Rocher, Paris, France.
Shaw, C. Knox,.....19 Upper Wimpole St., London, Eng.
Wright, Dudley,.....55 Queen Anne St., London, Eng.

CONSTITUTION

ARTICLE I.—NAME AND OBJECT.

This association shall be styled the American Homœopathic Ophthalmological, Otological and Laryngological Society, and its object the study of the eye, ear, nose and throat, with particular reference to homœopathic therapeutics.

ARTICLE II.—MEMBERS.

The society shall be composed of those physicians who are already members, and of such others as may be hereafter chosen in conformity with the by-laws.

ARTICLE III.—QUORUM.

At any meeting of the society eleven members shall constitute a quorum.

ARTICLE IV.—OFFICERS.

The officers of the society shall be a president, two vice-presidents, a secretary, and a treasurer, who shall also constitute an executive committee of the society.

ARTICLE V.—AMENDMENTS.

This constitution may be altered or amended by a vote of two-thirds of all the members present at the regular annual meeting, provided that notices of such alteration or amendment shall have been given in writing at a previous annual meeting of the society.

BY-LAWS.

ARTICLE I.—MEETINGS.

This society shall hold at least one session in each year, at such time and place as may be determined upon.

ARTICLE II.—ELECTION OF OFFICERS.

SECTION 1. The officers shall be elected by ballot at each annual meeting of the society, and shall enter upon their respective duties immediately after the close of the annual session.

SEC. 2. The regularly chosen officers of this society shall constitute an executive committee, which shall arrange the business of the session, attend to matters of business not otherwise specially provided for, and perform such other duties as may, by vote of the society, devolve upon them.

ARTICLE III.—DUTIES OF OFFICERS.

SECTION 1. The president shall preside at the meeting of the society, and perform such duties as may, by vote of the society, be devolved upon him. He shall deliver an address at the opening of each annual session, upon such subject as he may select.

SEC. 2. The vice-presidents in their order shall perform the duties of the president in his absence or disability.

SEC. 3. The secretary shall keep a record of the proceedings of the meetings, conduct the correspondence of the society, issue notice of meetings, and notify members of their election.

SEC. 4. The treasurer shall receive all money belonging to the society, shall make all disbursements under the recommendation of the president, and shall furnish at each annual meeting a written report of the condition of the finances.

ARTICLE IV.—CENSORS.

There shall be a board of censors, consisting of five members, who shall receive and examine the credentials of candidates for membership, and report to the society for election such as may be found properly qualified. The members of said board shall be elected by ballot at each annual session to serve for one year from the first day of January next succeeding said election.

ARTICLE V.—MEMBERSHIP.

SECTION 1. Any regular qualified and reputable physician endorsed by two members, may be elected to membership in this society.

SEC. 2. The admission fee of each member of the society shall be two dollars.

SEC. 3. Members shall pay annually the sum of three dollars toward defraying the expenses of the society.

SEC. 4. The election of no member shall be considered completed until he shall have paid his admission fee and annual dues; and his membership can only be continued by the annual payment of these dues. Until his dues are paid he may not participate in the active work of the society. He may at any time within three years, however, complete his membership by paying his dues for the current year, together with any back dues that may have accrued against him.

SEC. 5. Members neglecting the payment of dues for three years, after proper notification from the treasurer, shall have their names dropped from the roll of membership. Any person thus dropped shall have the privilege of reinstatement by paying all arrearages, on recommendation of the board of censors.

SEC. 6. Any physician of eminent attainments in the special fields of medicine with which this society is concerned, may be elected an Honorary Member on recommendation of the board of censors at any annual meeting of the society, and shall be exempt from dues and shall have all the privileges of members, except voting and eligibility to office.

SEC. 7. Any foreign physician may be elected a Corresponding Member of the society at any annual meeting, on recommendation of the board of censors, and shall have all the privileges of members, except voting and eligibility to office.

ARTICLE VI.—RULES OF ORDER.

SECTION 1. The rules governing the deliberations of this society shall be those found in Roberts' Rules of Order.

SEC. 2. No report or paper shall be received by the society in an incomplete or unfinished condition, and the title of any proposed paper shall be forwarded to the president by April 1st of each year and the completed paper by May 1st.

SEC. 3. The time allowed for the presentation of any paper shall be twenty minutes. The leading discussion shall not exceed ten minutes, and all other discussion five minutes for each speaker.

ARTICLE VII.

These by-laws may be altered or amended by a vote of two-thirds of the members present at the annual meeting.

STANDING RESOLUTIONS.

Adopted June 19, 1899:

"*Resolved,* That the Committee on the Nomination of Officers shall consist of all the ex-presidents of the society present at any meeting, provided that in any case less than three be present the president shall appoint from the members present a number sufficient to make the committee consist of three members."

Amended June 27, 1905:

"*Resolved,* Any five members in good standing may propose in writing to the Nominating Committee nominations for any or all of the offices. All such nominations must be made on the first day of the session. The committee shall report all such nominations together with any that it may see fit to add. The candidates shall be voted for by ballot in accordance with Article II., Section 1, of the Constitution."

Adopted June 16, 1900:

"*Resolved,* That all papers presented before this society shall become its property and be *first* published in its official organ; and, furthermore, be it

"*Resolved,* That the Homœopathic Eye, Ear and Throat Journal be continued as the official organ of the society."

Adopted June 19, 1900:

"*Resolved,* That the president be requested to appoint at each annual meeting a committee of three members on transportation, who shall act, as far as possible, conjointly with the same committee of the Institute."

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